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OBSERVATIONS
ON CERTAIN
CURIOUS INDENTATIONS
IN THE
OLD RED SANDSTONE
OF
Worcestershire and Herefordshire,
CONSIDERED AS THE
TRACKS OF ANTEDILUVIAN ANIMALS;
AND THE
OBJECTIONS MADE TO SUCH AN HYPOTHESIS REFUTED.

By JABEZ ALLIES, Esq.

ONE OF THE COUNCIL OF THE WORCESTERSHIRE NATURAL HISTORY SOCIETY.

WITH ILLUSTRATIVE ENGRAVINGS.

ALSO, AN ADDENDA OF A FEW OTHER FACTS IN
GEOLOGY, METEOROLOGY, ASTRONOMY, NATURAL HISTORY,
TOPOGRAPHY, &c.

London :

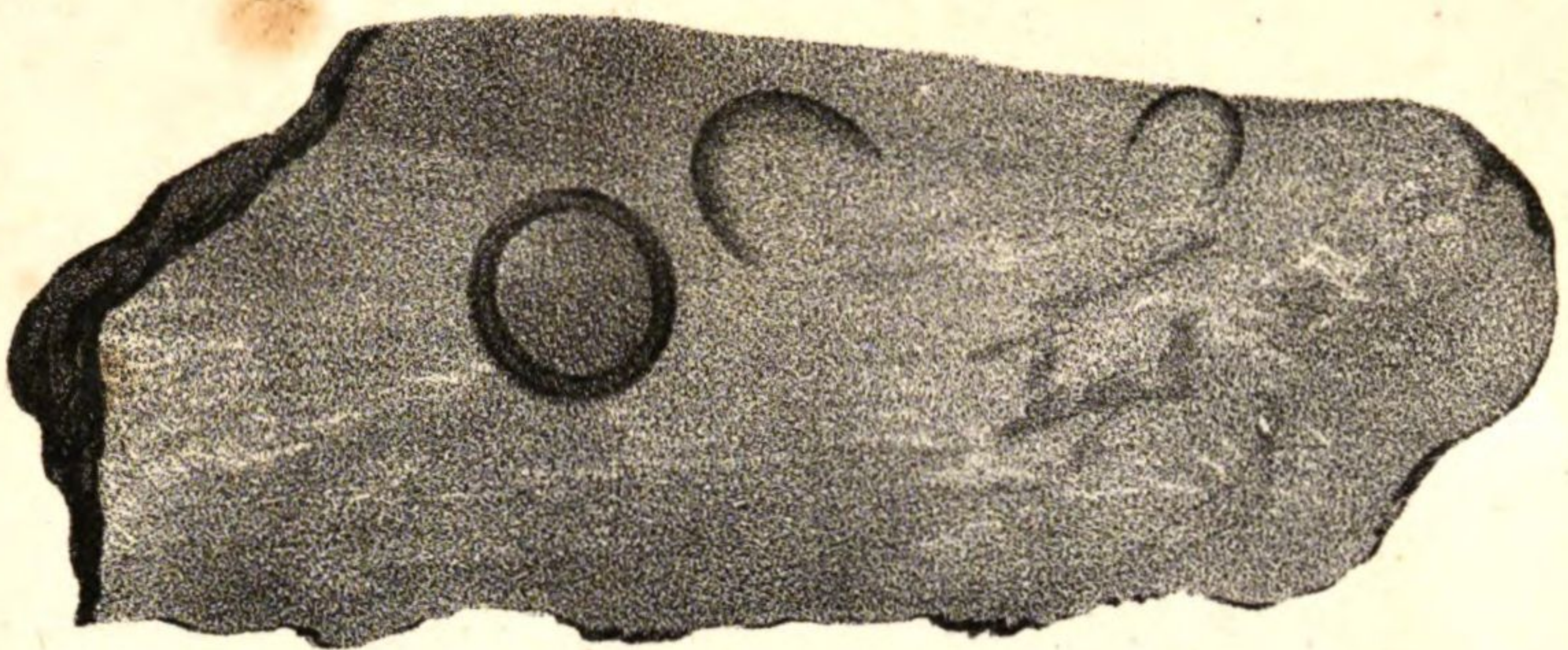
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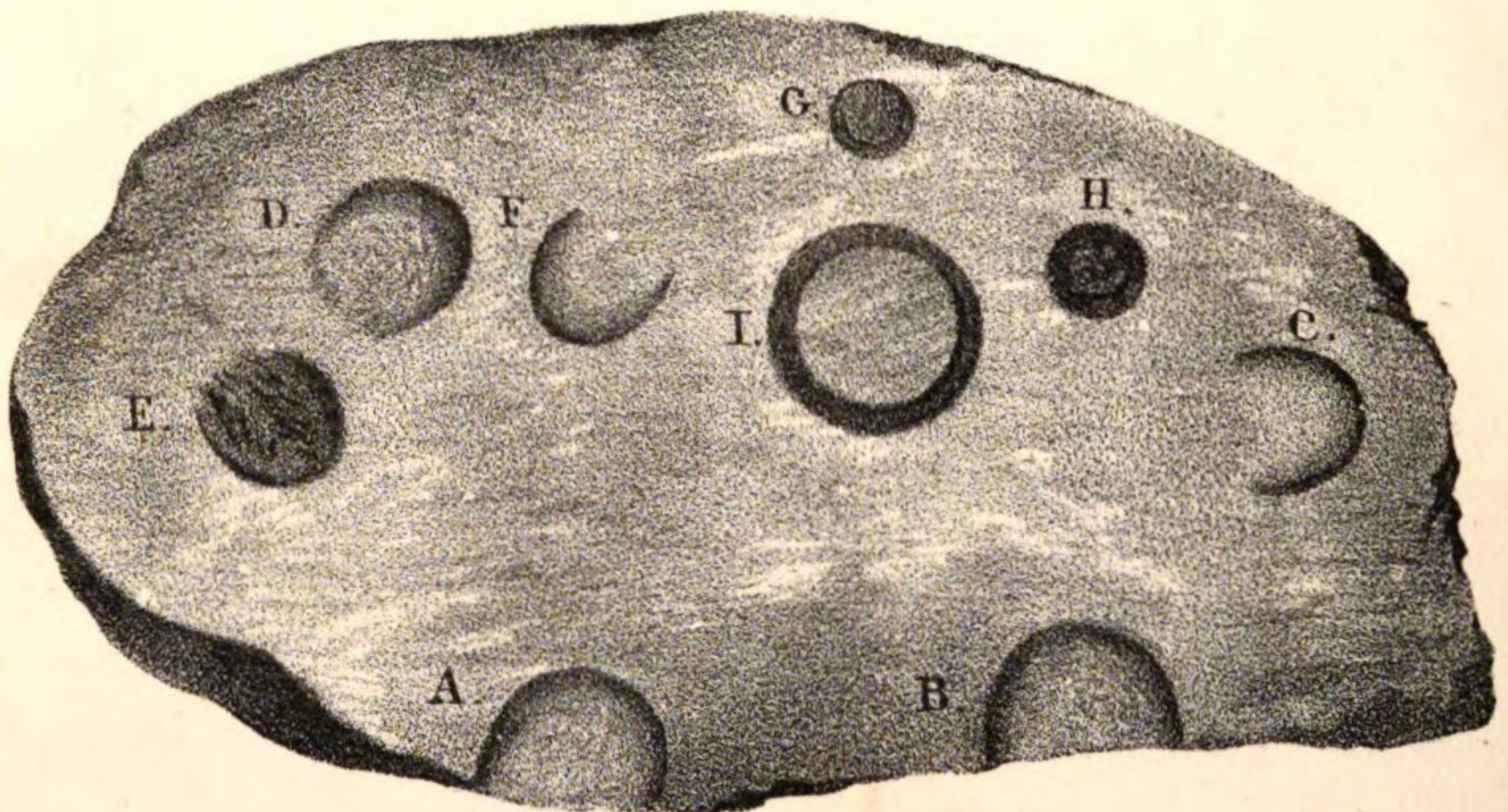
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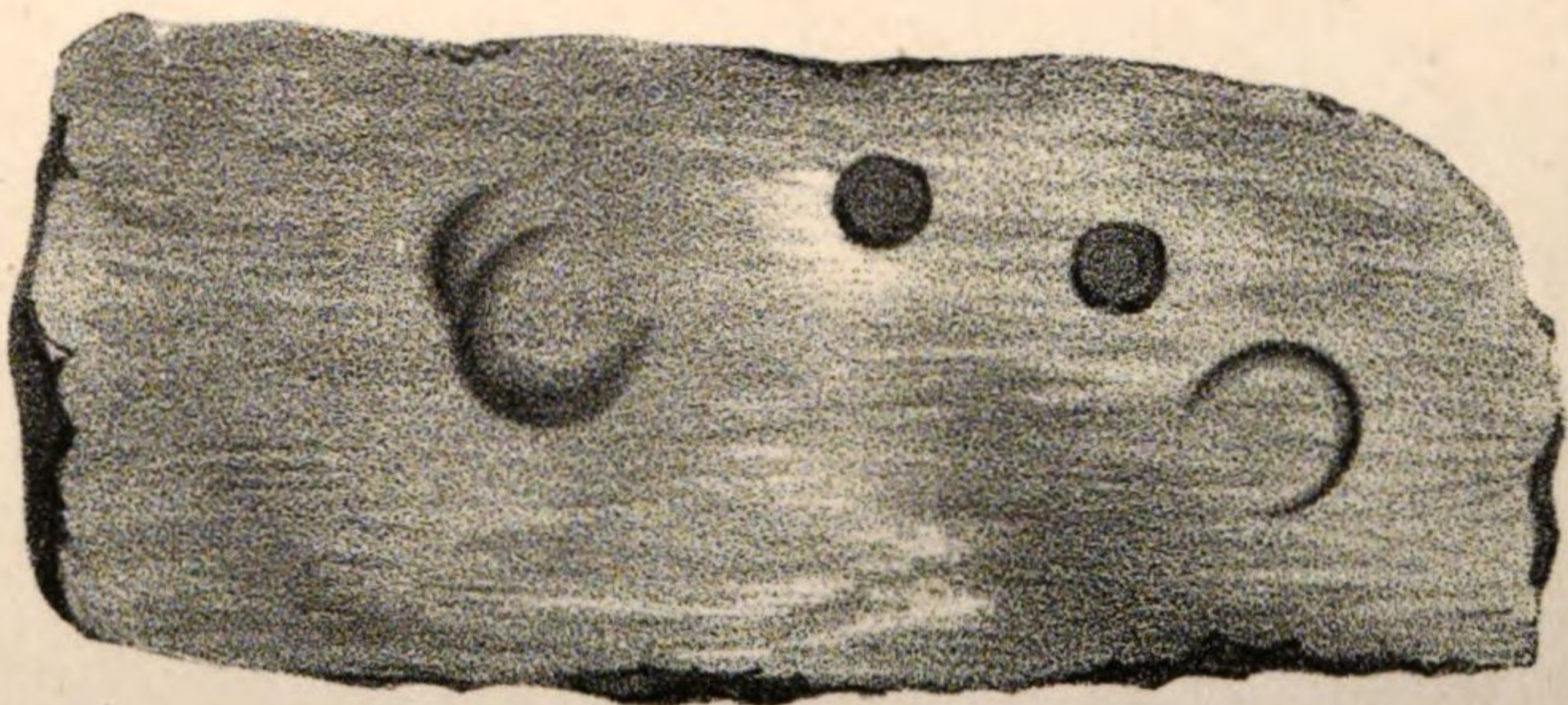
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PREFACE.

THE material facts contained in the following observations, relative to what I consider to be the tracks of antediluvian animals in the old red sandstone of Whelpley and Sapey Brooks, were originally laid in a series of letters, before the Council of the Worcestershire Natural History Society, and afterwards read by me before a general Meeting at the Guildhall, Worcester, on the 25th of November, 1834. Considerable curiosity was excited by the discussion of the subject, and much contrariety of opinion has been called forth. My conclusions have been disputed by many learned individuals, who yet admit that the subject itself is curious and interesting. I have calmly listened to their explanations, but they all appear to me to fail entirely in solving the phenome-

non ; and as I still decidedly entertain my original opinion, I have therefore determined that the public shall have an opportunity of forming their own judgment upon the point ; my object is to elicit the truth, and I shall therefore rest perfectly satisfied whatever may prove to be the final result of the investigation.

I have in the narrative and notes and likewise in the addenda, given a general sketch of the geology of the interesting range of country under review, with deductions therefrom, in illustration of the Noachian Deluge ; and particularly of the probable rush, or bearing, of the waters, from the southern regions.—An account of fish bones in the old red sandstone at Whitborne.—Of remains of the Rhinoceros at Sandlin, and of the Mammoth at Powick.—The legend and history of Catherine Audley, commonly called St. Catherine of Sapey and Ledbury.—Remarks on the probability of St. Augustine's Oak having grown on Old Storage Hill, in Alfrick.—An account of the effects of certain noxious plants on Cattle, and the speedy remedy.—Of a stratum of Coal at the Berrow Hill, in Martley.—Of an ancient camp

there, and the probability of its having been the station of Henry IV. at the retreat of Owen Glyndwr.—A body of evidence relative to the Ignis Fatuus, and its probable cause.—An account of the almost exterminated race of old English Black Rats.—Hints relative to Dry Rot, Turkish oaks, and Valonia.—Particulars of a stratum of half-formed Coal, from wood and other vegetable matter, in the gravel-beds at Powick, and Bromwich Hill, near Worcester.—Proofs drawn from the above, and also from the South Staffordshire coal-fields, in support of the hypothesis that the Deluge commenced in the spring of the year—that the rush of waters was chiefly from the southward—and that all coal-fields are vegetable matter, and were formed by the Deluge.—An account of organic remains, principally of the cow, sheep, and dog kind, in the gravel-bed at Powick.—Particulars and arguments to show that the Jewish sacred year, which began at or about the vernal equinox, corresponded with the time of the commencement of the Antediluvian year.—Proofs that the twelve signs of the Zodiac are hieroglyphics of the Antediluvian Patriarchs, in their order of succession, or of the

times in which they lived.—Also that the original sphinx was an hieroglyphic or combination of Aries and Taurus, to mark the time of the commencement of the Antediluvian solar year.—Particulars of a most remarkable coincidence between the Antediluvian and ancient Hebrew calendar.—Observations on Plutarch's account of the Flood.—Reference to the opinion of some writers that the Zodiac was alluded to by Joseph and Jacob.—Arguments to shew that the most ancient of the Pyramids were built before the Flood, and that the sacred and inspired history of the world was recorded thereon, down to the time of Noah, and perhaps also to the days of Peleg, and that Moses compiled the first part of the Book of Genesis therefrom, and the latter part from the sacred history handed down either orally or in writing by Abraham and his family.—The Mexican Pyramids a proof that such structures are Antediluvian.—The food of the workmen who built the Egyptian pyramids, as mentioned by Herodotus, a like proof.—An account of a remarkable stratum, interspersed with snail shells, at Spout Brook.—Particulars of Antediluvian tracks in Dick Brook—and of Saurian reptiles, and other

remarkable organic remains in the lias, in the parish of Bidford.

The facts and evidence relative to each case are detailed as minutely as possible in order that should my learned readers not be satisfied with my conclusions, they may be enabled to draw their own deductions therefrom.

JABEZ ALLIES.

Catherine Villa, near Worcester,

June 23, 1835.

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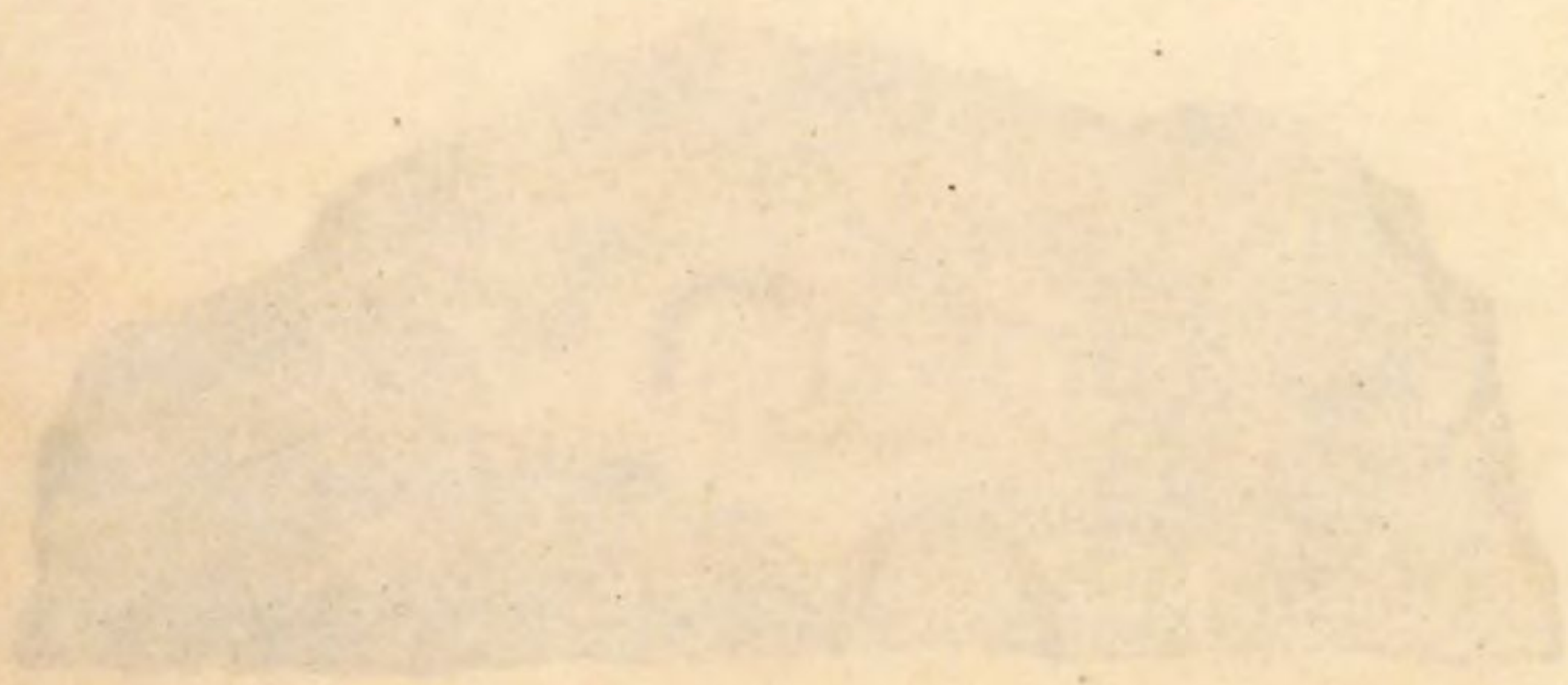
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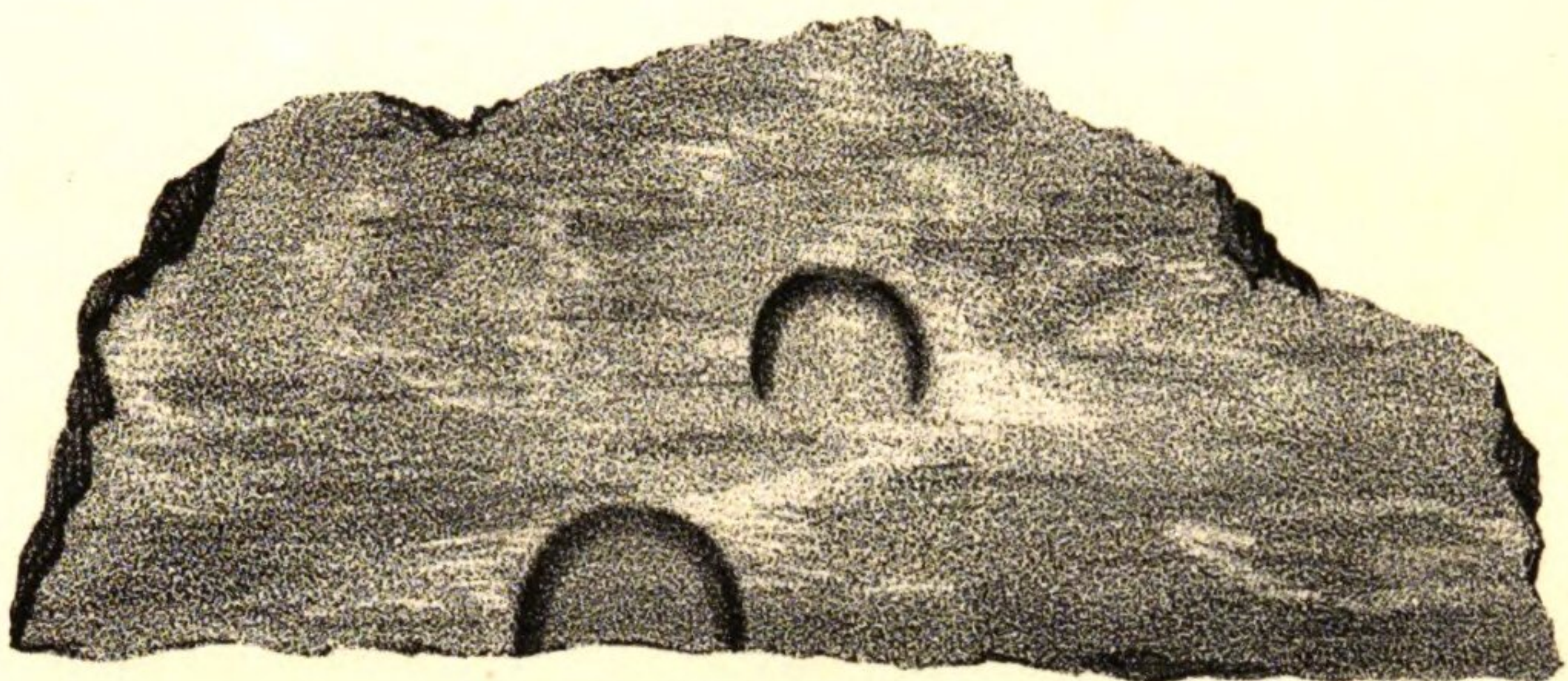
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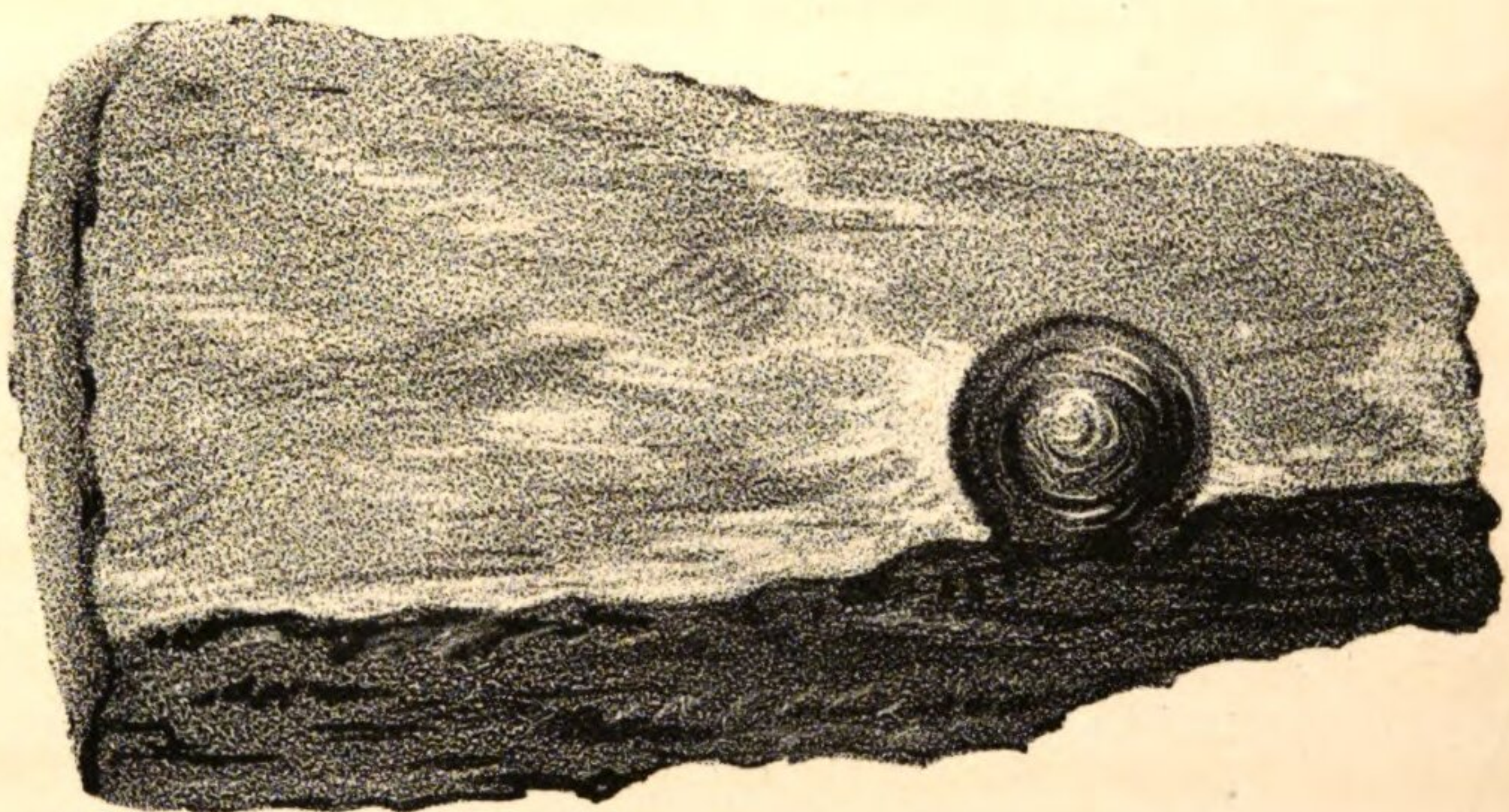
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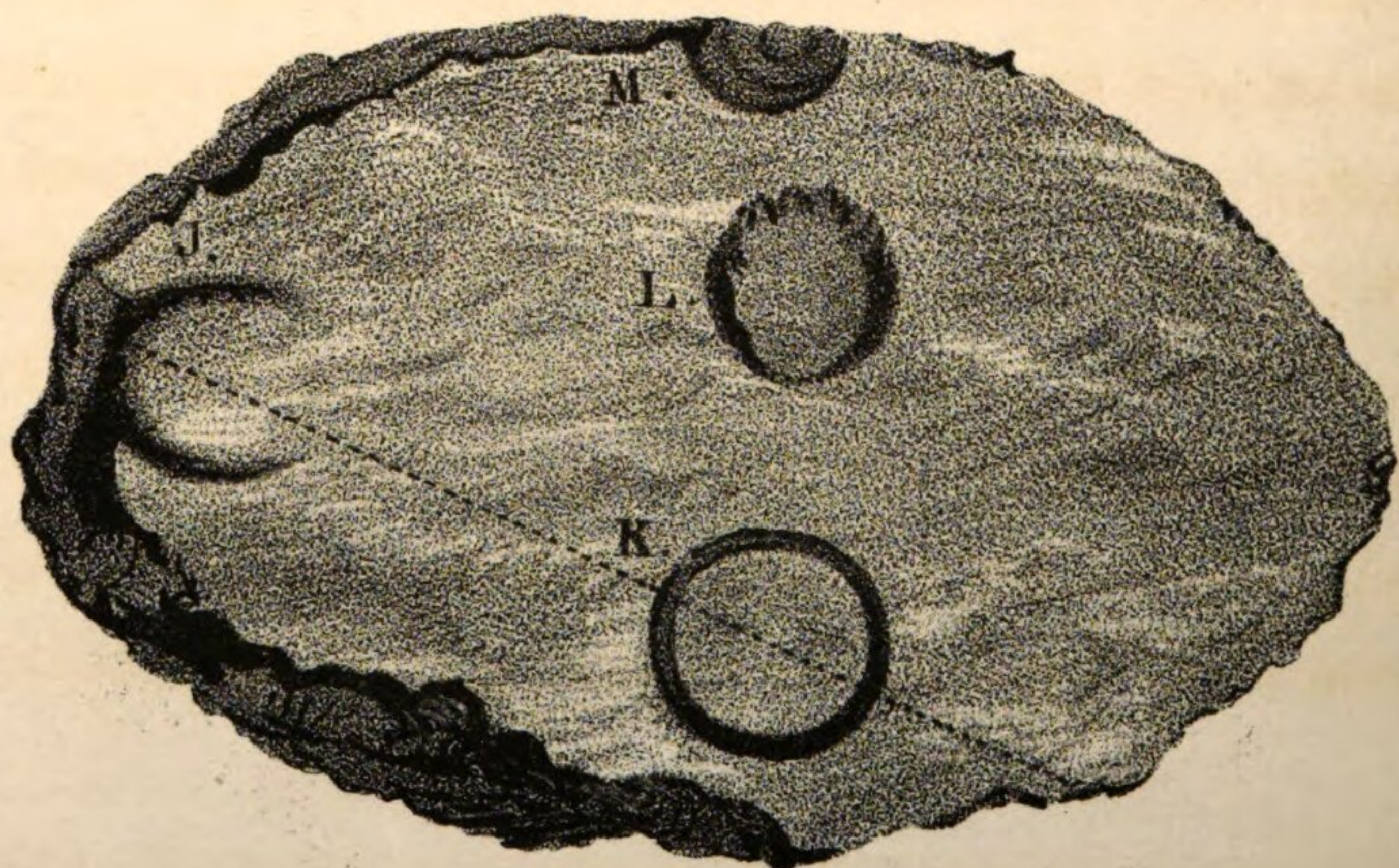
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In the spring of the year 1834, my attention being called to the Geology of the western parts of Worcester-shire, I found on turning over my portfolio, a drawing which I had made in 1806, of some remarkable impressions on a block of sandstone lying in Twispley Brook, at Stanford Regis, near Bishop's Cleeve, in Herefordshire, but close to the border of Worcester-shire, a sketch of which is hereto annexed. (See No. 1.)

In the said year, 1806, I went from Woodmanton, with the late Mr. John Cowcher, to the above-mentioned brook, to inspect the said extraordinary indentations, which were then very much talked of, and called the tracks of SAINT CATHERINE'S MARE AND COLT; and also the prints of Patten Rings; and we found a stone in the brook, partly covered with water, containing such impressions; but we did not then find any more, although we went I should think



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about half a mile up and down the channel ; but Mr. C. then observed, that formerly several of such prints were to be seen in various places in the above brook, and also for miles in Sapey Brook, Worcestershire, but that many of the stones had been carried away, and most probably others had been rolled over by occasional floods, or the tracks were worn out by time and the current of the water.

The sketch above alluded to I made upon the spot, whereby it will appear that one of the impressions is exactly like a horse's track, another is very like a colt's track, and the other is just like the impression of a patten ring. The stone, as near as I can remember, was about four feet long, two feet wide, and between one and two feet thick. The brook was low at the time, and that side of the upper surface of the stone upon which the tracks were, was out of the water, and the tracks pointed down the brook.

Before I proceed with narrating the legend, I must first observe, that of course I am not going to endeavour to support that fiction, however ingenious it may be, but I have other objects in view, which will appear in the sequel.

The legendary story I heard from my late father William Allies, of Upper House, Alfrick, relative to these remarkable tracks, as near as I can recollect, was

this. A person, said to be a girl with a pair of pattens on, having stolen Saint Catherine's Mare and Colt, and led them down several brooks to avoid detection—the Saint upon being informed of her loss, prayed that wherever the animals and thief trod, the marks of their feet might be left ; and that in answer to this prayer, the prints of the animals' feet, and also of the patten rings were deeply indented, not only in the earth, but also in the stones wherever they trod, and that thereby they were traced to, and found at Ledbury.

He also told me that in his juvenile days, some of the mare's tracks in Sapey Brook, contained what he considered to be the prints of the nails, and of the cockers of her shoes ; and Mr. James Cowcher, formerly of Woodmanton, and now of Alfrick, has lately informed me that he, when young, frequently saw such tracks of the mare and colt in the stones in Sapey Brook, in several places, on both large and small stones ; and the impression upon his mind was, that they pointed down the brook, towards Ledbury ;¹ and he said, that some of the mare's tracks contained what he considered to be the prints of the nails, and of the cockers of her shoes.

¹ The fact is, that although some of the tracks do point down the brook, yet it will appear in the sequel, that others point in various directions.

Upon looking at the maps of Worcestershire and Herefordshire, and from other information, I find that there is a continuous line of brooks nearly all the way from Upper Sapey to Ledbury ; namely first, Sapey Brook, which runs through Upper Sapey, Sapey Pritchard, or Lower Sapey, and Tedstone Delamere, to Whitborne. About half a mile from that, another brook, afterwards called Frome River, commences near Gaines and Cop Castle, which runs by Clatterpark through Avenbury, Stanford Bishop, and Bishop's Frome : and near that another brook, called Whelpley Brook, runs through Acton Beauchamp, Stanford Regis, and Stanford Bishop, into Frome River, and near that, another brook, afterwards called Ledden River, commences at Amesh Frome, which runs through Bosbury, and on to near Ledbury ; and the story is, that the mare and colt were led from one brook to another, as above stated.

Being satisfied that the Saint Catherine in question could not be the same as is said to have been born at Alexandria, at the latter end of the second century, and suffered martyrdom under the Emperor Maxentius, (and whose wheel is so celebrated,) as upon consulting my *Clavis Calendaria*, by Brady, it does not appear that the Egyptian Saint was ever in Britain ; and wishing to learn all the particulars I

could upon the subject, I therefore wrote to the Rev. Mr. Watts, Vicar of Ledbury, requesting any information that he could give, and in reply he has kindly referred me to a paragraph in Gough's Camden,¹ of which the following is a copy.

“Katharine Audley, or, as she is commonly called, Saint Catherine, was a religious woman in the reign of Edward II., and had a maid called Mabel; and not being fixed in any settled place, she had a revelation that she should not set up her rest till she came to a town where the bells should ring of themselves. She and her maid coming near Ledbury, heard the bells ring though the church doors were shut, and no ringers there. Here, therefore, she determined to spend the remainder of her days, and built an hermitage, living on herbs and sometimes on milk, which she sent for to a place called the Hayle. The King, on consideration of her birth, or piety, or both, granted her an annuity of £30. *Rex præcepit vice comiti Hereford quod omnes terras et tenementa que fuerunt Petri de Limesey, in Monyton, et Dilew, caperentur in manum regis, et quod de exitibus eorundem, solveret annuatim Caterinæ de Audley, reclusæ de Ledbury, 30 li.*”²

¹ Vol. 2 p. 456 of the first edition, and Vol. 3 p. 81 of the 2d edition, printed in 1806.

² Pat. 2, H. IV., 3, 14, 15.

Mr. Watts, however, was unable to obtain any particulars relative to the tracks, but stated in his letter, that "the Hospital of Saint Catherine, in Ledbury, was founded in the 13th century, by Hugh Folliot, Bishop of Hereford."¹

In addition to the information contained in the above extract from Camden, I recollect I heard my late father say that Saint Catherine, while travelling from place to place, is reported to have stated that "she was to end her days at some place whose name terminated with bury," and that upon arriving at Bosbury, while the bells were ringing, she sent her

¹ The said hospital must have been built previously to Catherine Audley's time, (although it might not have been dedicated, or named, before her time,) for Edward II. did not begin to reign till 1307, and it is stated in the aforesaid additions to Camden, that the bishop founded the hospital in 1232. Therefore, if it was dedicated to Saint Catherine at the time of its foundation, the Egyptian saint must have been meant; but I should think it was not dedicated *or named* till afterwards, and that in honour of Catherine Audley, the (I presume) uncanonized saint of the place, for it is stated in the said additions, that the hospital is "*commonly called Saint Catherine's.*"

Since I wrote the above note I have received the following in corroboration, from Harleian MS. 6726, fol. 109, in the British Museum. (Ledbury Hospital)—"For the Hospital of Saint Catherine of Ledbury I have seen an admonition to the custos or master of the Hospital House of blessed *Catherine of Ledbury*, from the then Bishop of Hereford, John Trillee, that he should take care to reform the brethren and conversants of that house, lest the blood of his brethren be (as the prophet cries) required of our as well as his hands; for their faults were grown public. Dated 7th Sep. 1353."

In addition to the above extract, Mr. Bowkett, of Ledbury, has also informed me that the chapel of the hospital was built in the style that prevailed between 1300 and 1400, called the decorated English. In the east window are the arms of the Grandisons, who had a mansion at Ashperton. John Grandison, born at Ashperton, was consecrated Bishop of Exeter, 1328, and filled the episcopal chair 42 years. It is probable that the Grandisons gave the east window to the chapel.

servant to learn the cause ; and upon the servant returning and stating that the people were ringing on account of a wedding, she said, "this is not the place," and then travelled on to Ledbury, where she took up her abode, for the reasons stated in the additions to Camden ; but whether she died and was buried there I cannot ascertain ; but I find it is stated in the said additions, that "a figure of a *priest*, in black marble, without arms or inscription, now whitewashed, and set upright in the North Chapel," (in Ledbury Church) "is Saint Catherine ;" and the said chapel, is I understand, also called by her name.

It has sometimes been suggested to me that the tracks in question were cut by the monks or hermits of some neighbouring monastery or hermitage, to found and support the legend upon, and to attract public attention ; but in answer to this it might be said, that they would not have gone to the trouble and great labour of cutting such tracks in hard stones, for so many miles down those lonely brooks. Perhaps the more probable conjecture is, that the legend, or at least the miraculous part of it was invented to suit the then existing geological fact, and that the stones in question are a conglomeration of indurated clay, grit, sand, and other particles, (the

deposit, perhaps, of either some great inundation, or gradual action of water) and if so, the tracks may be real, and have been made by persons with pattens on, and by horses and colts, while the mass was in a soft state, and which was afterwards hardened, perhaps by the sun and its own chemical affinities, or by a flow of petrifying water,¹ or some other cause, and became solid stone: and I am the more inclined to this conjecture, because one of my informants told me that in some places it appeared like as if the patten ring had flirited out the centre part of its track.

The reason I have been so minute in giving the legend is, because it clearly shews that the tracks (let their origin be what it may) are of very ancient date, for the inhabitants of those parts would not for several centuries past have known anything about the above Saint Catherine had it not been for the legend, and we should not have heard anything about the legend had it not been for the tracks. The legend must have been invented long before the dissolution of the monasteries under Henry VIII., and no doubt as far back as the time, or near the time, when Saint Catherine lived, as before stated: and the tracks most probably are antediluvian.

¹ It is stated in Gorton's Topographical Dictionary that there is a petrifying spring in Tedstone Delamere, and also one in Stanford Regis.

Having resolved fully to investigate the subject I therefore, on the 16th of April 1834, requested Mr. Edwin Lees the Honorary Curator of our Society, to accompany me on an exploratory expedition to Whelpley Brook, to see the prints in question; and there, at a place called Jumper's Hole, in Stanford Regis, close by Stanford Bishop, we saw a stone at a crossing in the channel of the brook, containing the tracks in question, and being in fact the very same stone which I saw there and sketched in 1806. It is about the size previously stated, and it appeared to me, and so also did the tracks, to be quite as perfect as when I first visited the spot. The print of what is called the patten ring is three inches deep in the stone, and is perfectly circular, and of a good old English size, and the mare's track is larger than that of a modern hackney.

Mr. Richard Heming, of Kingsland, near Leominster, who then happened to be at his cousin's, at the Hawking, accompanied us to the brook. He stated that he had known the above stone and tracks for about 50 years, having formerly resided at Sivington, in the neighbourhood, and said that that part of the stone within the circle of the patten ring had been partly broken out since he first saw it, and that it was formerly even with the surface of the rest of the stone.

However it is not now upon a level by two inches, but it is in the same state in this respect, as it was at my first visit. He also said, that he had heard that there were other stones containing such tracks formerly in the brook, but that he had not seen any other himself, and that stones are frequently taken out of the channel for building purposes; and he narrated the Legend of Saint Catherine in nearly the same language as previously stated, but said that some of the people there had an idea that what was called the track of the patten ring was a representation of loaves which Saint Catherine used to give to the poor. He also said that about a mile or two above the place in question the brook rises out of a pool, at a place called Longland, near Sivington, in Acton Beauchamp, Worcestershire; and that about three-quarters of a mile below the tracks, it runs into Frome river.¹

Upon chipping off two or three small pieces of the edge of the stone, in different places, we found that it was a kind of hard argillaceous or old red sandstone, and one end of it rather varied from the other in quality, being of a bluer cast; and I am still strongly inclined to the opinion that the stone in question is

¹ In Stanford Bishop Churchyard, we saw a very large female yew tree, which Mr. Lees measured, who found it to be 31 feet round at about 7 feet, and $27\frac{1}{2}$ feet round, at about 6 feet from the base, but it was not quite so large at the base.

conglomerate, and that the tracks were made when it was in a soft state, and that such was also the case with all the other stones which contained the tracks. There are also several other flat stones in and about Jumper's Hole, of the same quality as the one in question.

After the above detailed visit, I ascertained from an elderly person that about 45 years ago she lived at Pauncefort's Court, in Much Cowarne, Herefordshire, and that at that time a stone was brought to the house, and kept there, with a track of the colt upon it, which she was informed was taken out of Whelpley Brook, near Sivington, in Acton Beauchamp, Worcestershire; and she said the track was not very deep, but was very perfect, and about the size of a donkey's track; that the stone was a piece which had been broken off a larger one, and was very hard, flat, and about one inch thick and six inches in diameter. That at the above time she frequently heard the people at Pauncefort's Court say that there were then a good many tracks of the mare and colt, and patten rings, in the above brook; and she also said that she had frequently heard of such tracks having been seen in Sapey Brook, and related the legend relative to them in nearly the same words as previously stated.

Since writing the above remarks, on looking over a work entitled "Collections towards the History and Antiquities of the County of Hereford," by John Duncumb, A. M.,¹ under the head "Parish of Tedstone de la Mere," I found a paragraph of which the following is a copy.

"The soil of Tedstone is a red clay; and the natural inequalities of the ground, and a variety of coppices, beautifully interspersed with corn-fields and meadows, afford a most agreeable diversity of prospect, particularly when seen from the church. Through this parish flows the brook from Sapey, remarkable for its finely-flavoured trout and its romantic beauties. It is also remarkable for a traditionary account of a miracle which is still implicitly credited by the common people. According to this account, a mare and her colt having been stolen in the night from a neighbouring farmer, some centuries past, his daughter (with whom the mare was a great favourite) prayed that she, attended by some of the servants in the family, might be enabled to trace the retreat of the thief by the footsteps of the animals stolen. These footsteps were discovered without difficulty until the pursuers reached the brook, but on the opposite side no vestige whatever

¹ Vide part I. of vol. II., published in 1812.

was discernible. It then occurred to the damsel that the robber might have taken his booty down the rocky channel of the stream, in order to evade detection:—she had not proceeded far along its bank, before she exclaimed, ‘my prayers are heard, for see, here are the marks of their hoofs in the solid rock.’ Directed by these supernatural impressions, it is understood, that she and her attendants proceeded, and discovered the robber in a most romantic spot called the ‘Witchery Hole,’¹ or, as some contend, in another spot equally interesting, and called ‘the Hoar Stone.’ The wild grandeur of the latter spot is perhaps not excelled by the celebrated Vaucluse of Petrarch. Many pretended vestiges of the mare and colt are still pointed out in the channel of the brook by the credulous peasantry, and many more have been cut away by the felon chisel, to deck the simple mantle-piece of the rustic naturalist.”

Although the legendary account, in the above extract, varies in some respects from the ancient one I have previously set forth, yet the geological fact is, I think, completely corroborated thereby; and when the Rev. writer speaks of the “pretended vestiges” we can only understand him as referring to them as

¹ Witchery Hole is quite out of the line of the Brook, and lies near Clifton-on-Teme.

pretended vestiges of a pretended miracle, for in the next line he admits the existence of marks in the stones of the brook, then taken for tracks, and that many had been carried away, and he does not attempt to explain the phenomenon, and perhaps did not at all think of it in a geological point of view.

It has been suggested to me whether these tracks are not the sites in the stones of madrepores or shells; but in answer I would say, that the tracks are much too distinct to have arisen from such cause, and the fact that madrepores are not found in old red sandstone, is I think quite conclusive evidence against the above suggestion.

Wishing if possible to obtain still further information on the subject, I therefore on the 19th of June, 1834, requested Dr. Feild, one of the council of our Society, and Mr. Lees, to accompany me to Sapey Brook to ascertain whether any of the tracks were still to be seen there, and after taking a circuit to examine that remarkable mass of calcareous incrustations called Southstones, or Southern's Rock, near Stanford Court, we walked along the whole course of the brook from its commencement in Upper Sapey, and through Lower Sapey, into Tedstone Delamere; and a person residing in the neighbourhood informed us, that tracks were still to be seen in the brook, and

that he had known them for several years, and he undertook to conduct us to them. He said the report is, that Saint Catherine lived at the farm house called Burton, in which Mr. Walker now resides, situated on the west side of the brook in Lower Sapey, and that the mare and colt were stolen from thence, and led down the brook to avoid detection, and on to Ledbury; and he first conducted us to a small spring on the same side of the brook, called the Holy Well; and about half a mile further down, and a little below the Hope Mill, we were shewn a stone in the channel of the brook containing several very distinct tracks, namely two called those of the mare, three of the colt, one rather doubtful track, one patten ring impression, and two small circles, of which an engraving is herewith given, marked No. 2, and the following is a detail of the measurements of the impressions.—

- A. Mare's track, 6 inches in diameter, 2 inches deep. Fine impression.
- B. Ditto ditto, ditto. Ditto.
- C. Large colt's track, $3\frac{1}{2}$ inches in diameter. Very fine impression.
- D. Ditto, ditto, Ditto. Three-quarters of an inch deep.
- E. This track looks rather more like that of an heifer, and is four inches in diameter.
- F. Colt's track, 3 inches in diameter. A very fine impression.
- G. Circular indent, 2 inches diameter.
- H. Ditto, $2\frac{1}{2}$ ditto.
- I. Patten-ring impression, 5 inches in diameter, and $1\frac{1}{4}$ deep. A very fine impression, and the centre piece thereof is level with the surface of the stone.

All the said tracks have protuberances corresponding with the frogs of the animals' feet, very finely developed. The one marked G has a slight centre-piece, and the one marked H has rather more of a centre-piece than that marked G.

The said stone is about a yard and a half long, three quarters of a yard wide at the centre, and a foot thick; and it is (like almost all the rest of the stones in the brook) a hard old red sandstone, impregnated with carbonate of lime.

Some distance further down the brook we found another stone, containing two tracks of the mare blended together, one of the colt, and two small circles; and of which No. 3 is a representation.

Further below that we saw another stone with two tracks upon it, see sketch No. 4; and nearly all the way through Lower Sapey, we occasionally found a stone in the brook with an impression thereon. Some of the tracks were buried under the moss growing on the stones, and many of them were very indistinct, being much worn by age and the friction of the water.

Upon one not very large stone, in the brook, nearly opposite Mr. Downes's, of the Hope, we found a rather worn impression of the mare's track, and procured some workmen to carry it to

the Hope, for the purpose of being conveyed to the Museum of our Society, where it has since been deposited; see sketch thereof, No. 5. The said stone is 26 inches long, and 14 inches broad at the widest end, 5 inches broad at the other end, and 8 inches thick; and the track is 4 inches in diameter, and 1 inch deep, in the stone at the fore part of it, and the frog thereof is on a level at the apex with the surface of the stone.

Being informed that there were other stones containing similar impressions at Mr. Downes's of the Hope, and also at Mr. Thomas Downes's of the Farm, which were taken out of the brook, we then went to the Hope, and there in the Court-yard, we saw a stone containing one patten ring impression, one track of the mare, and two of the colt; see sketch No. 6, but those tracks on this stone, marked J and M are rather mutilated, and are situated close by the edge of the stone. This stone is 24 inches long, 18 inches broad, and 4 and a half inches thick; and the mare's track, marked J, is four and a half inches in diameter, and the frog thereof at the apex is on a level with the surface of the stone. The patten ring impression, marked K, is a very good one, and is three and a half inches in diameter, and one inch and a quarter

deep on the one side, and a quarter of an inch deep on the other side, and the centre piece is also level with the surface of the stone.¹ The colt's track, marked L, is 3 inches in diameter, and 1 inch deep, but the frog of this track is not level with the surface of the stone, but it is a little raised; and the colt's track, marked M, is two inches and three quarters in diameter, and is a broken impression.

Mr. Downes kindly promised to present this stone to me for the Society, and it has since been deposited in the Museum. In Mr. Downes's rick-yard, there is also a stone placed horizontally upon the top of one of the stone pillars, which support one of the ricks. This stone contains a track of the mare, and although we could scarcely see it, on account of the rick, yet we could feel it with our hands, and I considered it to be a very fine impression. In a wall by the house, there is also a stone with a good track of the colt upon it.

Mr. Downes told us that all the above mentioned stones on his premises, were brought out of the brook a great many years ago, and that when he

¹ On the 7th of October, 1834, this stone was sawn through, vertically, by the advice of Dr. Buckland, in the line as dotted in the plate, and it was subsequently sawn through horizontally, the results of which are hereafter detailed.

was young, the tracks were much more numerous in the brook than they now are.

Leaving the Hope we crossed to the west side of the brook, to Mr. Thomas Downes's of the Farm, where we found a stone used as a weight at the top of the cheese press, with two impressions of the colt upon it, and one deep circular indent therein; see the sketch thereof, No. 7. This stone is 27 inches long, and 16 inches broad at the two ends, 7 inches across the middle, and 6 inches thick; and appears to be more impregnated with carbonate of lime than the other stones in the Museum. The colt's track, marked N, is 2 inches in diameter, and three quarters of an inch deep, but the frog of this track is not level with the surface of the stone, but is a little raised. The colt's track, marked O, is a most excellent impression, and is two and a half inches in diameter, and three quarters of an inch deep at the fore part. The frog of this track is level with the surface of the stone at the hinder part of it, and the circular indent, marked P, is two and a half inches in diameter, and an inch and quarter deep, and is without any frog.

This stone was cut of the above shape to suit the cheese press, and we were told it had been there for several years. Mr. Thomas Downes has

been kind enough to present this stone to me for the society, and it is now in the Museum.¹

Mr. John Knill, of the Hope Mill, also told us he recollected that about sixteen or seventeen years ago there was a stone placed as one of the stepping stones on the steep ascent by the brook on the east side of it, opposite Lower Sapey Church, with a very good impression of the patten ring upon it; and several of the old inhabitants of Lower Sapey informed us, that they had seen the tracks on the stones in the brook from their infancy, and that formerly such tracks were much more numerous than at present.

Having left Mr. Thomas Downes, we again continued our course down the brook as far as the Hoar Stone, in the parish of Tedstone Delamere, but not finding any more impressions, we left the brook to partake of the hospitality of Philip Wight, Esq. of Tedstone Court, and for whose kind arrangements to facilitate our search we were much indebted.

¹ It is worthy of remark that the stones in the museum containing the tracks have not the least appearance of impressions on the *under side* of them. Edward Morris, Esq., our Honorary Geological Secretary, has called my attention to this point. The best tracks are still in the brook, but the stones are much too massive to be easily moved. I mention this because if a stone could be found with the tracks imprinted on both sides of it, my theory would fall to the ground; but as no such stone can be met with, it certainly tends much to establish the arguments I have adduced.

During our stay at Tedstone Court, a Poem, just published by Dr. Booker, late Rector of Tedstone Delamere, and now Vicar of Dudley, intitled "The Springs of Plynlimmon," was placed upon the table, in which we found that the author in describing the course of the river Teme, alludes to Sapey Brook and the Tracks in question, as follows:—

" Till amid hills and valleys fair,
At lovely Tedstone Delamere,
She* meets a Brook without a name,
Unchronicled, unknown to fame;
But not unmark'd (so rustics say)
By strange event, in olden day.

Then, some nocturnal robber stole,
From pastures green, a mare and foal;
And hoping to escape he took
His plunder'd booty down the brook,
Where he surmis'd each footstep's trace,
The flowing waters would efface.

— Deceptive hope, and vain surmise!
None can escape Heav'n's searching eyes.

A pious maiden with her sire,
Heedless of peril, toil, and mire,
Pursu'd the robber, tracing plain
The footmarks fresh through field and lane,
Till on the brook's smooth fording side,
Those marks more plain were soon espied;
While, on the further brink, were none.

The maiden then, this orison
Pour'd forth to Heav'n, in lowly guise,
Faith beaming from her up-cast eyes:—
'O thou! who, to the good, art kind,
Grant we our plunder'd own may find.'
Then down the stream their course they bent,—
Its aid, the clear stream gladly lent,
And show'd in many a shallow place,
The marks, by which pursuit could trace

* i. e. the Teme.

The fav'rite pad, and filly too,
 That yet had never worn a shoe.
 These, with the robber, soon they found,
 And fast, with cords, the culprit bound,
 Near Hoar Stone's rocks which tow'r sublime,
 And frown'd on such a heinous crime :
 Yet, beetling grandly from above,
 Smil'd on the sire and maid with love :
 A pleasant scene for them to view,
 As Abyssinian vales ere knew.
 A Petrarch there might wish sojourn,
 And for his Laura cease to mourn ;
 Or anchorite there find his cell,
 With meditation mute to dwell,
 Till, purified from earthly leaven,
 His spirit soar aloft to Heaven."

And, in a note, Dr. Booker adds—"From Stanford the Teme pursues its tranquil course to Shelsley Beauchamp, Martley, Whitborne, and Knightsford-bridge, receiving, near the latter place, a peculiarly beautiful rivulet, that seems to have no appropriate name. Intersecting, however, the parish of Tedstone Delamere, (of which parish the author, during six years, was the rector) he named it the Delamere. That parish (for reasons assigned in the poem) claims further notice, to explain the singular legendary account of the stolen mare and foal. At the present day, many of the neighbouring villagers believe that account, and point to numerous stones in the brook as authenticating it, bearing (they assert) exact impressions of the foal's shoeless hoof, which led to the robber's detection. 'When ignorance is bliss, 'tis

folly to be wise ;' were these ' simple annals' proved to be erroneous by convincing the rustic that the stream, by attrition, has caused those marks, he would be deprived of what affords him pleasure in regarding the beautiful brook as partaking of something that is supernatural. The secluded spot where the stolen animals are said to have been discovered, with the robber, very much resembles Petrarch's celebrated Vaucluse. High rocks rise, perpendicularly, on all sides, partially covered with the richest traillage ; and in the middle, like a stupendous altar, stands ' the Hoar Stone,'¹ consisting chiefly of tufa, coated with lichens and mosses, partly encrusted by the cold calcareous lymph that gushes out from various sluices ; while the babbling brook and resorting birds give a kind of living character to the otherwise awful solitude of the place."

Before I proceed any farther, I must, although most respectfully, beg leave to differ from Dr. Booker in some particulars, namely—

First. From what I have heard, the brook in question so far from being nameless, has for a considerable time been called Sapey Brook, in the whole length of its course through Upper Sapey, Lower

¹ A great part of the Hoar Stone has, since Dr. Booker wrote the above, been removed as materials for grottos and other ornamental work, but I am happy to say it is gradually forming again.

Sapey, Tedstone Delamere, and Whitborne. And in proof of this, the bridge which crosses this brook at the south side of Whitborne parish, within about a mile of Knightsford-bridge, and close by the turnpike road leading from Worcester to Bromyard, is called Sapey Bridge : and on a map now lying before me, this brook is, in Tedstone Delamere, described as "Sapey Brook."

Secondly. I rather think that the above account of the robber having been detected at the Hoar Stone is a very modern version of the legend. The account as given to me by several very old persons of what they had heard in their juvenile days, was that the animals were led down the brooks to Ledbury, as previously mentioned.

And Thirdly. It is pretty clear, from all the evidence I have received and stated, that the attrition of the waters, so far from having caused the tracks, has tended very much in the course of time to wear them out, particularly in some places ; and Mr. Heming, of the Church House, in Acton Beauchamp, has lately told me that the tracks in Whelpley Brook were, when he was young, more distinct than they now are. However, I must add here, that so distinct and perfect are these tracks even now, in some places both in Whelpley and Sapey Brooks, that I should as

soon be led to believe that a clear representation of the "human face divine" would be produced on various stones by the attrition of the stream, as that such attrition produced these tracks.¹ The remarkable fact, also, that such tracks have ever since the time of Saint Catherine, in Edward the Second's reign, been designated as the tracks of a mare and colt, and patten rings, shews that for the last 500 years and upwards they have been known to bear the appearance they now exhibit, and the legend itself of course gave them great notoriety, and called upon all the world to witness the faithfulness of their appearance to the things represented.

But to return to our narrative. It is observable here, that there are petrifying springs which run down the steep declivities into Sapey Brook, at certain distances from each other all the way, from nearly its source in Upper Sapey to the Hoar Stone, and also further down, and that the banks in places are covered with calcareous incrustations, and occasionally in the

¹ Since I wrote the above, Mr. John Lycett, of Tenbury, sent a letter dated the 29th of August, 1834, to the Editor of the Worcester Journal, relative to my communications to the Society concerning the tracks in question; and in which he adopted the attrition theory, and stated that there are similar impressions in the old red sandstone in the bed of the Teme, near Tenbury. Now, I am ready to admit that there might have been something in the above theory of attrition, if there were any circular concretions or concentric balls in the tracks in question, but there are not any, as will appear in the sequel.

channel of the brook we perceived lumps of such calcareous matter which had fallen from the declivities, but this was only occasional, the stones in general in the brook being the old red sandstone impregnated with carbonate of lime, and they abound in the channel of the brook much more in Lower Sapey, than in Upper Sapey, or Tedstone Delamere; and in the south part of the latter place, and also in Whitborne parish, there are scarcely any stones to be found in the brook.

The stones in some places in the brook present an appearance not unlike the confusion of a broken sheet of ice, and the stratum has been evidently discomposed by the gradual lowering of the channel, and it is said many of the stones have been rolled over by the fishermen, and others by the rapidity of the floods; (and which floods in this brook must be very considerable after heavy rains, as the water runs into the same with great force from the very high lands which border the brook almost all along its course,) and therefore it would be impossible to find the tracks in any thing like a continuous line.

I mention all the above local circumstances, in order to endeavour to throw a light upon the manner in which this stratum of old red sandstone was formed; and I again submit, that when it was in a soft state

it received the impressions of the animal's feet, &c., and afterwards became hard stone as before observed.

With respect to the circular indents in some of the stones, which are much smaller than the patten rings, I should think that they are either the tracks of animals of the cloven foot kind, or that they are some of the colt's tracks which were deeply impressed, and which gradually assumed a more circular form than the rest, from the hand of time and the friction of the water, or from being partially filled up with grit and other matter; and perhaps in some cases the hinder foot impression would vary from those of the fore foot, and assume a more circular shape, as the foot was dragged out of the plastic or slippery mass.

I would also remark here that the tracks vary in size from each other, and appear to be the prints of various pattens and of several animals, and the horse or mare's tracks are generally larger than those of a common hackney, and appear about the size of those of a market horse, and the patten ring impressions are perfectly circular, like those worn by country people, and made by blacksmiths, and not oval like those of the modern fashion.

I also submit that the ring impressions could not, as some have suggested, have been the tracks of an animal (now extinct,) having a circular foot, for such

a foot must not only have been perfectly circular, but like an inverted cup or tumbler glass, it must also have had a concavity of at least three inches deep, and all the ring impressions at Sapey Brook have a centre piece like that at Whelpley, of various heights above the bottom of the circle.

I must again repeat that I think the legend is very valuable in an historical point of view, as it goes to prove the known existence of the impressions as far back as the time of Saint Catherine; and although the tracks or marks no doubt were made before the deluge, yet they might not have been brought to light again after that event, till about the time of Saint Catherine, for the reasons hereinafter mentioned.

After the survey of the brook, Dr. Feild and my other friends at once admitted that it was quite impossible for the tracks to have been cut by the monks or hermits, or any other persons, for the range is much too extensive, and the tracks too numerous, to have been so done; and in some parts the places containing the impressions are almost inaccessible from the briars and thick underwood, and the explorer is often obliged to leap from stone to stone, to the no small danger of either falling into the water, or breaking his bones among the rugged masses around him.

As geologists are decidedly agreed that the formation of the old red sandstone was anterior to the Deluge,¹ the now bringing to light, in a geological point of view, of the above remarkable impressions, presents a most interesting and invaluable field to the enquirer.

Here then, I take it, we have the tracks of antediluvian horses and colts, and of patten-ring impressions. And if so, they clearly prove that this country was then not only inhabited, but that it was in a state of considerable civilization, for as the inhabitants (or at least the females) it may be inferred, then used a kind of patten or sandal, shod with an iron ring, (perhaps to defend their feet from the gigantic vegetation of those days,) they must therefore have been well acquainted with the use of iron, and they most probably worked the mines of the country. Further, the supposed prints of the nails and of the cockers of the horse-shoes formerly seen in some of the tracks, as previously stated, would, if they really were what they were taken to be, also further prove the use of iron in those remote ages, and the then existence of the blacksmith; and further, that the very circumstance of the horses

¹ Some even contend that it was formed thousands of years previous to the creation of man.

being shod, proves that those animals were then domesticated and employed in the service of man.

Perhaps, as was suggested to me, Tubal-Cain himself, the *eighth* from Adam (in the line of Cain) and who was the instructor of every artificer in brass and iron, or some of his family, might have settled in this country and practised or taught the art to the natives; and there may be more reason in this conjecture than at first appears, when we recollect that Noah himself was only the *tenth* from Adam in the line of Seth.

But to return again more immediately to our subject, it appears to me that the reason why the remarkable tracks in question have remained until the present day, arose in the following manner; namely, that at the Noachian deluge the surface of the old red sandstone containing the impressions was buried by the deluge with a thick deposit or stratum of grit, earth, gravel, sand, &c., from the adjacent heights all along the line of the brook or dingle, and that it took ages for the current to wear away this upper deposit or stratum, and, therefore, the tracks were preserved from the action of the stream, and also from the gradual decay that would arise from their being constantly exposed between wind and water. And, further, that in after ages

(perhaps about the time of Saint Catherine) the current of the brook had worn away the above upper deposit or stratum, and then the old red sandstone, with its tracks and patten-ring marks, became exposed again to view ; and that, since that period, a gradual decay of it has been going on from the friction of the water and the hand of time. And the stream has also gradually undermined the stratum, and caused it to sink lower and lower in broken and confused masses.

It is perhaps not unworthy of remark here, that such gradual destruction in nature is noticed in one of the most ancient books, if not the most ancient in the world, I mean the Book of Job, wherein, in chapter xiv, verse 19, it is thus stated :—"The waters wear the stones : thou wastest away the things which grow out of the dust of the earth ; and thou destroyest the hope of man." The said book also refers to the formation of impressions, in chapter xxxviii, verse 14, as follows, namely, "It is turned as clay to the seal." And unless Job meant the boils with which he was afflicted, it might reasonably be inferred that he figuratively alluded to the patten, or sandal, shod with iron rings, in like manner as he did to the stocks in chapter xiii, verse 27, in the words following, namely, "Thou puttest my feet also in the stocks,

and lookest narrowly unto all my paths ; thou settest
a print upon the heels of my feet."

The following is Dr. Adam Clarke's commentary on the last-mentioned passage, namely verse 27. "*Thou puttest my feet also in the stocks*] *bassad*, 'in a clog,' such as was tied to the feet of slaves, to prevent them from running away. This is still used in the West Indies, among *slave-dealers*; and is there called the *pudding*, being a large collar of iron, locked round the ancle of the unfortunate man. Some have had them *twenty* pounds' weight; and, having been condemned to carry them for several years, when released could not walk without them! A case of this kind I knew: the slave had learnt to walk well with his *pudding*, but when taken off, if he attempted to walk, he fell down, and was obliged to resume it occasionally, till practice had taught him the proper centre of gravity, which had been so materially altered by wearing so large a weight; the badge at once of *his oppression*, and of the *cruelty* of his *task-masters*! [*And lookest narrowly*] Thou hast seen all my goings out and comings in; and there is no step I have taken in life with which thou art unacquainted. [*Thou settest a print upon the heels of my feet.*] Some understand this as the *mark* left on the foot by the clog; or the *owner's mark indented* on this clog;

or, Thou hast pursued me as a hound does his game, by the *scent*."

Now whether the ancient stocks, or clog, made what I call the patten-ring tracks, or whether the "print" upon the heels of the feet was a separate and distinct instrument, and made the same, is quite immaterial to my case. I submit that it was one or the other of such instruments, upon the feet of either bond or free antediluvians, that made such tracks; and this appears fully to explain the meaning of Job's figurative language, namely, that he did not and could not take a single step in life without its being as distinctly marked and traced as the footsteps of those wearing the clog or patten.

The Rev. Henry Duncan, D. D., minister of Ruthwell, did, I find, in the year 1828, publish an account of the discovery, in the quarry of Corncockle Muir, Dumfriesshire, of the tracks of tortoises in new red sandstone. Now this is confirmatory of my statements, and I think myself peculiarly fortunate in having been thus able to collect and preserve the legendary history and geological facts of the impressions in the old red sandstone of both Whelpley and Sapey Brooks; and I submit that such facts rank among the most remarkable discoveries of the present day.

I shall now advert to the opinions of several learned

gentlemen who have attempted to controvert the hypothesis I have adduced.—First, Dr. Buckland, having examined the specimens in the museum, at first thought his own theory upon the subject was correct, as stated in his letter to me of the 28th of July, 1834, namely that the marks or prints in question were “sections of inorganic circular concretions, which are occasionally found in beds of red sandstone, by unequal attraction of the iron, or of calcareous matter to certain centres, around which concentric balls are formed, of a different nature and colour from the matrix or body of the stone ;” but upon my having the stone, No. 6, sawn vertically through the centre of the mare’s track, and also of the patten ring impression, he very candidly told me that he thought the appearance of the two sections of the stone corroborated my theory in preference to that of his own, as there was no circular concretion, or concentric ball, either in that part of the stone corresponding with the frog of the mare’s foot, or in the centre piece of the patten ring.

I have given a drawing, (see No. 8,) of that side of the stone, which was sawn off from the bulk, together also with a few explanatory observations thereon ; and I must add, that the workmen declared they never before sawed so hard a sandstone.

The section of the stone of which No. 8 is a sketch, is fifteen inches long, and five inches deep, and it is entirely of an old red sandstone colour, except the perpendicular marks, which are of a stone blue colour.

The part marked W, is the protuberance corresponding with the frog of the mare's foot. The present depth of the patten ring track, on that side from Q to R, is an inch and a quarter, and on that side from S to T, is a quarter of an inch; but I take it this track was formerly deeper, for from R to U, which is half an inch, and from T to V, which is an inch, the stone is of a deeper red, and appears of a coarser quality, and it looks as if the bottom or narrow part of the track, (which of course was not much exposed to the occasional friction of the current of the brook,) had been thus much filled up, either soon after the formation of the tracks, or in the course of ages, by the deposit of a kind of grit cemented together perhaps by its own chemical affinities, or by the petrifying water which flows from the various springs into Sapey Brook, as previously stated;¹ and I must also observe here, that upon minutely examining those two or three small deep circular indents in some of the stones

¹ The fact is, that upon further investigation, the above-mentioned deposit at the bottom of the patten-ring impression, proves to be nothing more than red clay, and which was most probably the sediment of the occasional floods. It is so soft that upon being wetted it stains the fingers just like red paint.

in the Museum, (the bottoms of which indents do not contain any defined tracks, although some of them contain a kind of frog,) they do also appear to me to have been partly filled up in the above suggested manner.

In order further to complete the investigation of the subject, Hugh Strickland, Esq., of Cracombe House, and Mr. Lees, members of the Council of our Society, at my request accompanied me, on the 15th of October, 1834, to Sapey Brook,¹ and we minutely examined that very remarkable stone set forth in sketch No. 2, and my opinion still is that not any circular concretions, or concentric balls, are or ever were in the tracks which it contains, for upon my breaking off pieces of the frogs of some of the tracks, I found such frogs to be exactly the same in quality as the rest of the stone.

Under all these circumstances, I submit that the tracks in question compel us to come to one of the

¹ We walked up the course of the brook all the way from Sapey Bridge, near Knightsford Bridge, through Whitborne and Tedstone Delamere to the Hope Mill, in Lower Sapey, and at about a mile from Sapey Bridge, at or near the farm called Longland, we found a quarry of old red sandstone containing fish bones, but could not discover any marine fossils or shells therein. The fish bones were as soft as soap, and of a bluish white colour, like starch in a state of solution. I must here observe that although Dr. Feild and Mr. Strickland upon their seeing the stones in Sapey Brook, as before stated, did not adopt my theory, yet they admitted that the depressions were very extraordinary, and said that they had not any theory of their own to propose.

following conclusions ; namely first, either that all the strata of old red sandstone were formed since the creation of Adam, and horses ; or secondly, that there have been successive formations of such stone, and that the more modern strata only were deposited since the creation of Adam, and horses ; or thirdly, if both the above conclusions should be incorrect, it would drive us to the alternative that before the creation of Adam there was a prior race of men and horses, which had become extinct by an universal deluge, or some other cause. I, however, decidedly think the second conclusion is the right one,¹ and that we have no occasion to go to the alternative, which is not warranted by the Mosaic account, and perhaps might be considered in opposition to it.

With respect to the formation of the above stratum of old red sandstone in the line of Sapey Brook, I am strongly inclined to think that it arose in the following manner, namely, that all the low land for some distance to the west of the Malvern, Old Storage, Suckley, Hall House, Ankerdine, and Berrow chain of hills, was in the primitive ages, that is, before the Noachian deluge, covered with water, forming a

¹ I am strongly borne out in this opinion by the Corncockle case, where the tortoise tracks overlay each other upon successive strata ; which proves that there must have been formations of the new red sandstone at various periods of time.

great lake, into which the River Teme, Sapey Brook, and other streams flowed; and that such waters ran out of the lake over a cataract at the top of the end of the Hall House Hill Chain, which abutted against Ankerdine Hill at near where Knightsford Bridge now stands, and the top of which cataract I should consider was about upon a level with Lower Sapey. That at those parts where Sapey Brook emptied itself into the lake, it formed a kind of sand-bank, or deposit of grit, sand, and other particles. That as the waters gradually cut through the bar at the cataract, such deposits of grit, sand, and other particles, were gradually left upon the dry land, and also formed the bed of the brook, and being charged with petrifying water, calcareous matter, and other chemical affinities, became old red sandstone. That ultimately the bar was completely cut through at the cataract, and the lake consequently entirely disappeared. That the tracks in question were made by the animals and persons trampling or stepping upon the margin of the lake, or in the channel of the brook, while the said old red sandstone was in a state of formation. That as a proof that this stratum of stone was of fresh-water formation, I have not been able to detect any thing like marine shells therein, although Ankerdine Hill abounds with them, as will

appear in the following general sketch of the geology of the above chain.

The whole of that part of the range from Malvern to, and including, Cowley Park, and the Rough Hill, in Cradley, and Old Storage, in Alfrick, (being about four miles long) is stratified secondary rock and grit stone, except at one place on the west side of Storage in the Conygree Coppice (near the Common and the Bailiff's Fee Pasture) which is grauwacke, and also except at a spot on the eastern side of Storage, in Leigh, called the Norrest, which is transition limestone. The whole of the Suckley Hill Chain, and in which I include the range to it from the Crofts, on the west side of Malvern Hill, in Mathon, and the range through Cradley to Langley Green, and the proper Suckley Hill Range, which runs from Tundridge, near Langley Green, between Suckley and Alfrick, and the range from it, which runs between Knightwick and Lulsley, and joins the Hall House Hill in Limekiln Field, belonging to the Brick Hall estate in Knightwick, at within about a mile of Blackswell, near Knightsford Bridge, (and being in the whole about six miles long,) is transition limestone, and contains alcyonia, trilobites, orthoceratites, &c. The whole of the Hall House Hill Range, which commences at Langley Green and runs through

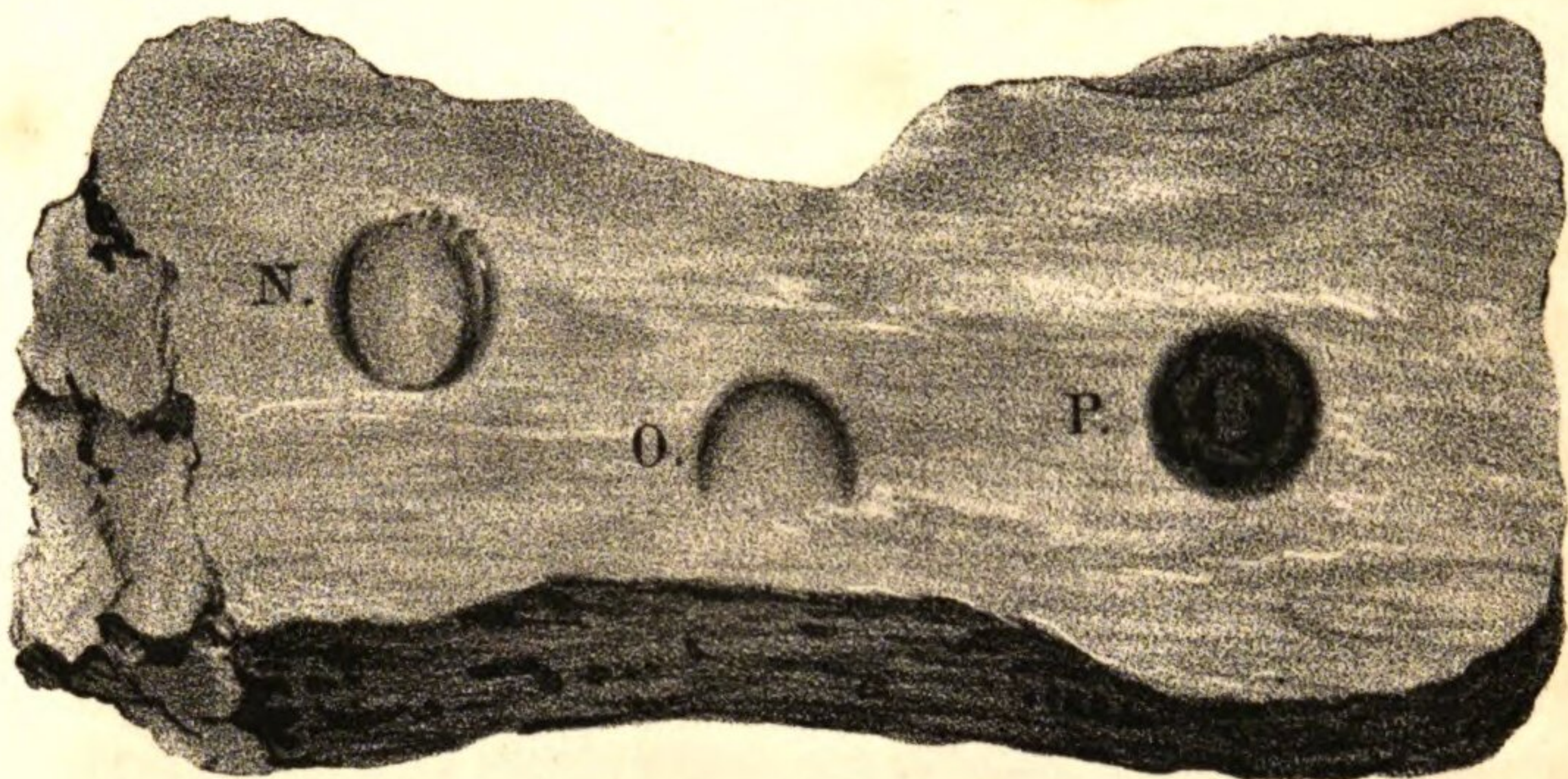
Suckley, to Blackswell, in Knightwick, and in which range I include Bear's Wood and the Halesend Hill, in Cradley, and being in the whole about four miles long, is grauwacke, (except at the very end of the chain, at Blackswell, which is new red sandstone,) and abounds with small petrified shells, particularly between the layers. Rosebury Rock, in Lulsley, is new red sandstone. Ankerdine Hill, in Dodenham, is grauwacke, with occasional nodules of limestone between the strata, and it abounds, like the Hall House Hill, with small petrified shells, particularly between the layers. And the Berrow Hill, in Martley, is new red sandstone.

The Suckley Hill Chain is skirted on the eastern side of it, at the southern division, by the Old Storage Range, and on the western side of it, at the northern division, by the Hall House Hill Range.

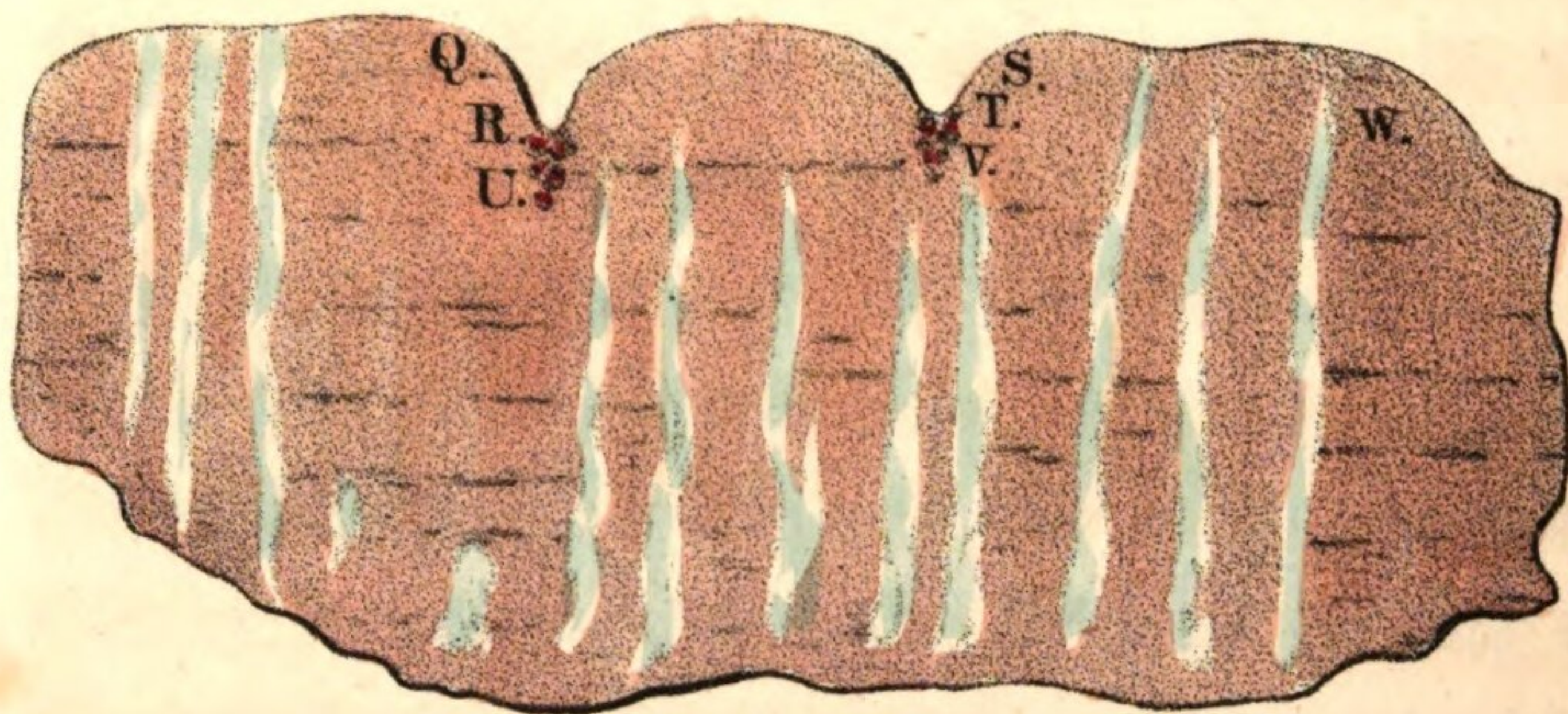
I have, in the addenda, stated a few additional particulars relative to the geology of the above interesting chain of hills, and also some remarks on their natural history, topography, and meteorology.

With respect to whether the above-mentioned remarkable conglomerate of new red sandstone, &c., called Rosebury, or Rosemary Rock, and also the aforesaid new red sandstone end of the Hall House Hill Chain, formed a part of the original bar which

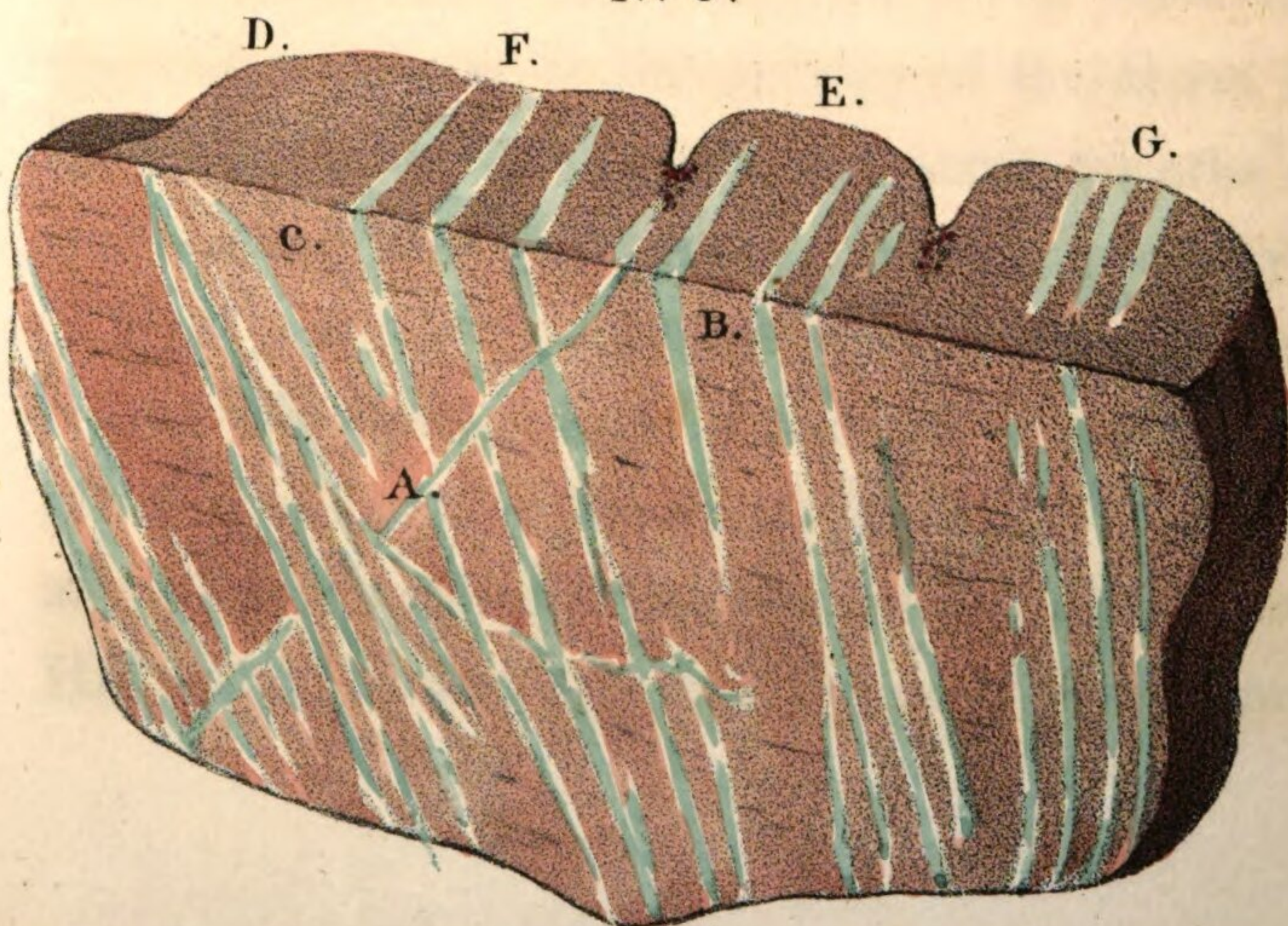
Nº 7.



Nº 8.



Nº 9.



was cut through before the Deluge, as above stated, or whether they were a deposit made there by the Deluge, and subsequently gradually cut through by the overflowing of the waters from the lake, is open to enquiry, but I think the latter was the case.¹

Since I wrote the above, the stone set forth in sketch No. 6, a piece of which I caused to be sawn off perpendicularly, has also been sawn through horizontally, at the request of Mr. Morris, vide sketch

¹ Rosebury Rock, I submit, strongly supports the opinion of Mr. Kirwan, and others, that the waters, at the Noachian Deluge, rushed principally from the south or south-east, for such rock is composed of an immense mass of pebbles and stones of various sorts, imbedded in indurated clay, grit, sand, &c.; many of which stones are foreign to the place, and appear as if they had been swept to the spot in question from the south, all along the vale which lies on the eastern side of the Malvern, Old Storage, and Suckley chain of hills; and which vale contains new red sandstone nearly all the way from Old Storage through part of Alfrick and part of Lulsley, to Rosebury Rock. It is also worthy of remark here, that in the above line of vale, four teeth of the rhinoceros have lately been dug out, near the bottom of a gravel-pit at Fleet's Bank, in Sandlin; and a mammoth's tooth out of the bottom of a gravel-pit at Powick's Farm; and which teeth are now in the museum. And perhaps the fact of such organic remains having been found in the above locality tends to corroborate the opinion of Mr. Kirwan that such animals were brought by the deluge from the tropical regions, and buried by the rolling of the waters, in the gravel, at the above spots. However, on the other hand, it is contended by some of the learned, that such animals, in the primitive ages, were natives of these northern regions, although they are not so now; and the discovery of the bones in Kirkdale Cave, Yorkshire, does, it is said, go to prove it—vide the very interesting account of such bones published by Dr. Buckland. I have also been presented with a few fragments of bones, and petrifications, which were dug out of the above gravel-pit or mound, at Fleet's Bank, and have lately procured some from thence myself; including sea shells, alcyonites, madrepores, &c. This mound where broken into is like a mass, or drift, of shingles of various species of stone and pebbles, and it runs along the middle of the field in the line East and West, i. e. transverse to the course of the aforesaid rush of waters.

No. 9; whereby it appears that, contrary to Mr. Morris's expectation, nothing like *circles* of blue veins run through the stone, but that the blue veins invariably run in nearly straight and parallel lines; and that those parts of the section at A B and C, which are opposite to the indents on the other side of the stone, are just the same as the rest of the stone; and it is rather singular that those parts where the patten-ring and mare's track are, at D and E, contain the least quantity of the blue veins, as will appear by the said sketch No. 9, and also by the sketch of the first section, No. 8. And I submit it is impossible for the friction of the water, even supposing it could have washed out the blue veins, to have caused these circular and semicircular impressions, unless we can be led to believe that straight lines in hard stones will form themselves into circular indents, by attrition. And it is also worthy of remark, that upon looking at the said section, No. 9, those parts of the upper surface of the stone to which the blue veins run, at F and G, are not at all worn down by the waters, and such veins appear to be quite as hard as the rest of the stone.

Since writing the above, I have received another letter from Dr. Buckland, upon this subject, a copy of which is as follows.

“Oxford, Nov. 4, 1834.

“My dear Sir,

“I am just returned from Brighton, or I should have acknowledged sooner the favour of your last parcel respecting the Sapey Brook sandstone, for which I beg to offer my best thanks. At the same time I must fairly tell you that I adhere entirely to the concretionary theory, and I am confirmed in this opinion by Mr. Murchison, who was here yesterday, and has walked all down the bed of the Sapey Brook, and he has not the least doubt that the cavities are void spaces from which concretions of marlstone and other matter have been washed out by the action of the brook.

“The drawing in your last packet is very interesting, and the vertical concretions, tinted blue, are in harmony with Mr. Murchison’s opinion upon the subject.

“I beg to repeat my thanks for the trouble you have taken and communications you have sent me,

And remain, my dear Sir,

Your much obliged and obedient

Humble Servant.

“(Signed)

W. BUCKLAND.”

“To Jabez Allies, Esq., Worcester.”

In reply to the above, I wrote to Dr. Buckland with a copy of my previous remarks relative to the fate of the blue vein theory, of which he was unacquainted when he wrote the above letter ; and I also added that it was very difficult, if not impossible, to understand how concretions of marlstone and other matter could have been formed (like models) in the shape of horses' and colts' feet, and also of patten-rings, and then become imbedded in the sandstone, when in a soft state, and afterwards washed out when the stone was hard, by the action of the brook, and leaving the void spaces formed by such concretions. On the contrary, I submitted that such concretions (where any do appear) *were subsequently formed in the tracks in question*, or in what Dr. Buckland calls the void spaces or cavities of the stones.

I must also here observe, that the theory of W. Addison, Esq.,¹ (one of our council,) as set forth in "The Analyst,"² corresponds with the above new theory of Dr. Buckland and Mr. Murchison ; but Mr. Addison acknowledges himself quite at a loss how to account for the circular character of what he calls the "infiltrated red marly earth."

I have thus, I think, clearly shewn that the circular

¹ Resident at Malvern.

² Vide Analyst No. 4, for Nov. 1834, p. 304.

concretion, and blue vein theories, are quite inadequate to explain the phenomenon in question: and with respect to the model theory I submit that it also is shattered to pieces, and every vestige of it crumbles into dust, unless we can be led to believe that Nature formed models, like horses' and colts' feet, in marl and other matter upon the sandstone during the time that it was in a state of formation.

Under all these circumstances, I submit that we have again arrived at the momentous conclusion that *some* of the strata of the old red sandstone were deposited since the existence of men and horses, and that the tracks or marks in question were made by persons and animals, while the stratum was in a state of formation; and therefore, that the geologists must begin *de novo* in their classifications, and consider that the various strata which have been represented as having been formed thousands and tens of thousands of years before the Mosaic time of the Creation, were many of them formed *within the six days* or periods¹ of the Creation, as stated by Moses, and *the rest subsequently* thereto; unless we can be led to believe that the tracks in question were made by a race of

¹ It appears probable that the days of the Creation were much longer than those at present; for Adam and Eve were both created on the sixth day, and yet Adam named "every living creature," and that characteristically, before Eve was created.

men and horses, which "became extinct before Eden was planted," but which would necessarily lead us through a "sunless and moonless" chaos of unnumbered and untold ages, into a prior world of order and beauty ; all which, however, is unwarranted by, and might be considered in opposition to the sacred record.

ADDENDA.¹

SAINT AUGUSTINE'S OAK.

IF Sir Henry Spelman was right in his conjecture, (vide the additions to Camden,) that Saint Augustine's Oak² stood in Alfrick, I should think from the known predilection and good taste of the ecclesiastics in the primitive ages, for commanding situations and beautiful scenery, that the oak grew at the top of Old Storage, (from whence six or seven counties can be seen,) and until within these last five or six years the skeleton of a very ancient oak did stand there, close by the Beck Farm House, near the top of the hill, and which is within half a field's length of the modern Beck Oak, which grows quite upon the pinnacle.

¹ The facts set forth in the Addenda were, like the preceding, at various times communicated by me to the Worcestershire Natural History Society; and in order to give them their due force, I have followed my previous plan, by, in most instances, taking the liberty of giving the names of my informants.

² It is said that the conference of Saint Augustine, the apostle of the English, with the British Bishops, took place under the celebrated oak that bears his name, in A. D. 603. At this meeting, it was intended to settle some disputes relative to the observance of Easter, &c.; but after much discussion, no conclusion was arrived at, and both parties separated mutually dissatisfied.

STRATUM OF COAL AT THE BERROW HILL, IN MARTLEY.

THERE is coal beneath the Berrow Hill. My late grandfather, John Allies, of Upper House, Alfrick, had a shaft sunk at the south side of the hill, about seventy years ago, and procured a considerable quantity of coal therefrom, but it was principally of an inferior quality, and the works were therefore abandoned, and the shaft filled up.¹ The above account I had from my late father, who told me that he often visited the works: and his brother, Thomas Allies, Alderman of Worcester, now in his 86th year, lately informed me that he, when quite young, went once or twice to the mouth of the shaft, and saw a considerable quantity of coal, which had been brought up out of the pit. I mention all these proofs because from a note relative to this point, pp. 99, and 100, of Dr. Hastings's admirable lecture, entitled "Illustrations of the Natural History of Worcestershire," and printed in 1834, it might be inferred that the above facts, are only traditional.

¹ When Mr. Lees and myself explored this region in the Spring of 1834, we found where the mouth of the shaft was. Some small mounds of earth which lay thereby, upon being dug into, were found to be blue clay. Upon our having ascended to the top of the hill, a spot was pointed out to us, where there is a modern shaft, and we were informed that coals had been obtained therefrom, but of an inferior quality.

SUPPOSED INDICATIONS OF COAL IN ALFRICK.

THERE is an idea that there are indications of coal in several places in the line from Old Storage, to the Berrow Hill, and perhaps with some reason, for the new red sandstone commences at the eastern side of Storage,¹ and runs northward in rather a broken chain parallel with Suckley Hill; and on the eastern side of it, through part of Alfrick, and part of Lulsley,² to Blackswell in Knightwick. This sandstone at the Bridges-stone over the brook in Alfrick, contiguous to Storage, is by the lowering of the road and the channel of the brook, exposed to the depth of about twenty feet, and the stratum throughout its course (which in some parts is about half a mile wide,) is covered except in a few places, with a fine deep earth of sandy loam, and runs first through the south side of Alfrick,³ to the Upper House,⁴ where

¹ Near the above place, at about a quarter of a mile from the Beck, there is a fine yew tree in Cradley, which is now 12 feet round at three feet, and 14 feet 3 inches round, at six feet from the base.

² In the chapel yard at Lulsley there is an ancient female yew tree, which is 6 yards round at about five feet, and 5 yards round at about three feet from the base. The head of it is partly dead, and several large limbs have been broken off. The length from the extremity of one bough, to that of the opposite one, is 22 yards.

³ The other parts of Alfrick are principally clay.

⁴ There is a fine echo at the Upper House, which is so distinct, that it will allow ten syllables to be uttered before it begins to repeat them. The spot is in the garden, opposite to and about 250 yards from Alfrick Chapel. In proof of its distinctness, one of the pointer dogs used occasionally to resort to the spot, and bark till he was tired at his supposed antagonist.

we lose sight of it in the close behind the house ; but I have heard that it appears again (by digging,) about a mile further on at Raffler's or Raffnal's Green, in Lulsley, and in about half a mile further it becomes very much exposed at a place called Bate's Bush, in Lulsley, where it joins the end of the Hall House Hill Range, at Blackswell, and Rosebury Rock, as before mentioned, and I am informed it then runs along the eastern side of Ankerdine Hill,¹ through Dodenham, to the Berrow Green, and Tucker's Hill in Martley. In the aforesaid Close, behind the Upper House, (where there is a junction of the new red sandstone with the clay,) my grandfather had excavations made in search of coal, and also in his adjoining woods,² but I believe without success, although one old inhabitant told me he heard that they did find a narrow bench of coal in the Close, but another said he thought it was only blue clay. The said new red sandstone is very hard in some places, and upon the

¹ On the west side of this hill, in the hedge by the the road side, near Knightsford Bridge Inn, there is a pear tree which apparently has not attained to near its full growth, and yet it now measures 10 feet and 10 inches in circumference, at about 6 feet from the base, and it is nearly the same size from the ground to the above height. The length of it from the extremity of one bough, to that of the opposite one, is 22 yards.

² There is a petrifying spring, which rises in the woods belonging to the Upper House Estate, in Alfrick, and runs through the north west end of them near the Suckley chain, and Round Hill. The plant called *Equisetum*, grows abundantly in the water course.

removal of a pump to a new situation, at the Upper House, in the time of my late father, the workmen after sinking a well of about twenty three yards deep, came to the solid rock, which from its nature they could not well blast with gunpowder, and therefore they bored some holes about four feet deep, either through the rock, or into a cleft in it, and out gushed a supply of very fine water, which soon filled the well to within about ten yards of the top, and has been a never failing supply ever since. There is also a strong spring at Blackswell, which breaks out at the side of the Sandy Lane, and I understand never fails.

Other attempts have been made in this new red sandstone line, and also in adjacent parts to find coal, but hitherto I am informed without success. I rather think however the excavations or borings were not made deeper than to the surface of the new red sandstone, and therefore there was not much chance of success.

FAIRIES' RINGS.

I HAVE often noticed in the meadows at Alfrick, Lulsley, Knightwick, and the adjacent parishes, that those remarkable marks in the grass called fairies' rings prevail very much in some places.

CATTLE AND NOXIOUS PLANTS.

CATTLE are sometimes injured, particularly in the spring of the year, by eating noxious plants. This used to occur formerly at the aforesaid pasture, called the Bailiff's Fee, on Old Storage, where after young cattle had been depastured for about a month or two in the spring, they generally became so bloated, that unless they were almost immediately bled, death shortly ensued. This could not then be accounted for, as there were no fruit trees in the pasture, and the herbage appeared but little better than that of the adjacent common, and upon the water being tested by an experienced chemist, it was found not to contain any iron, or deleterious qualities. In order, therefore, further to investigate the subject, Mr. Lees and myself examined the spot, in the summer of 1834, to see if water parsnips, or other noxious umbelliferous plants, grew in the water-courses, and we found that two species of plants whose foliage is particularly acrid, do grow there, of the genera *ranunculus* and *potamogeton*, and which it is presumed had been eaten by the cattle, and affected them as above. I mention this circumstance because it may be useful that the speedy remedy by *bleeding* should be generally known. I observe Mr. Lees has referred to the fact but not to

the remedy, in a note to p. 91 of his most excellent lecture "On the Affinities of Plants with Man and Animals," delivered by him before our Society, and printed in 1834.

ANCIENT CAMP ON THE BERROW HILL.

THERE are two lines of trenches round this hill, near the top, which shew it to have been an ancient camp. These trenches are now very perfect on the north and south sides of the hill, and yet I do not find that they are noticed in "Nash's History of Worcestershire," although the adjacent old intrenchment at Woodbury Hill is referred to therein, as follows.—

"In the parish of Great Witley, the River Tame passeth under Woodbury Hill, remarkable for an old intrenchment on the top, commonly called Owen Glyndwr's Camp, but which probably is of more remote antiquity. A. D. 1405, the troops of Owen Glyndwr,¹ with their French auxiliaries, plundered Worcester, and retreated into Wales. Henry IV. followed them, and after an unsuccessful expedition

¹ Vide a very interesting account of this Chieftain in "The Analyst," for March 1835, Vol. 2, No. VIII., p. 73, entitled "Kenchurch Court, Herefordshire," by Sir Samuel Rush Meyrick, K. H.

into the mountains, returned to Worcester. The top of the bank, on Woodbury Hill, contains 26A. 2R. 27P., and if the dimensions be extended to the centre of the ditch, it would measure at least two acres more. This hill is distant from Wassal Camp, in the parish of Kidderminster, about eight miles, and from Kenvar Edge, about eleven: those stations, then, seem too far distant for the armies much to have disturbed each other; but their advanced guards might, probably, approach the Severn on each side, and there skirmish for eight days together, there being killed, on both sides, about 200 men: or what my ingenious friend Mr. Pennant supposed, when I had the pleasure of viewing the ground in his company, might be true, that the king lay on Abberley Hill, about a mile to the north of Woodbury; and that from both hills were sent the choice spirits of each party to tilt and skirmish together: though I never could find any marks of intrenchments on Abberley Hills."

Had Dr. Nash been aware of the Berrow Hill intrenchments, I think that he and his friend Mr. Pennant would have concluded that the king and his army lay on this hill (and perhaps also on Ankerdine Hill) instead of on Abberley Hill, where the Dr. acknowledges that he never could find any marks of

intrenchments. And, as the king followed the invaders on their retreat from Worcester, it is the most natural, in a topographical point of view, to suppose that he was stationed at the Berrow Hill, which was in the *rear*, instead of at Abberley Hill, which was in the *front* of the retreating army. The name Berrow is most probably a corruption of the word burrow, of Saxon derivation, and meaning a place fenced or fortified.

IGNIS FATUUS, AND ITS PROBABLE CAUSE.

As some persons entertain doubts of the existence, at least in these days, of the phenomenon called Ignis Fatuus, I therefore in the month of February 1834, enquired of some of the inhabitants of Alfrick, and found that it had been frequently seen in those parts. It is called by several names, such as "Will o' the Wisp," "Jack o' Lantern," "Hobberdy's Lantern," "Hobany's Lantern," and "Hob and his Lantern." The three last of the above names I have written as they are generally pronounced in the country, and the two last are the most in use. It strikes me that

these names may be a corruption of "Oberon's Lantern."¹

In the following narrative of information which I received at the above time, relative to this extraordinary subject, I have endeavoured to be as minute as possible in detailing the time, place, and circumstances connected with each case.

One of the cottagers, named Thomas Booth, of the age of 67 years, then residing at Old Storage, in Alfrick, and who had lived there about the then last 34 years, told me that he had frequently seen "Hobany's Lantern," in the course of his life, at Alfrick, Knightwick, Lulsley and other parts.—That it appeared after wet weather, in boggy sour places, in the winter season. That the last time he saw it was in December, 1833, when it appeared in a damp place on the top of Storage Common, at about thirty yards distance from him, and that he looked at it for about three minutes. That it moved up and down for some time, and then fell to the ground and vanished away. That he had seen it most frequently in two meadows, one called Lamsate Meadow, and the other Pivany Meadow, at the north-west side

¹ How classical is the idea that the fairies, at the before-mentioned rings, do practise their midnight gambols in the presence of their king, with his "lantern dimly burning."

of the brook, at the bottom of Old Storage, near the Mill Pond; and sometimes at the boggy parts in the woods at Storage. That the first time he saw it was a great many years ago, about midnight in some coarse ground called the Stocks Gorse, at Raffnal's Green, in Lulsley, where he went to fetch home the waggon-horses to the Upper House. That it appeared to rise out of the ditch, and pass across before him and the horses, into the copse, at about eight yards distance, which frightened the horses as well as himself. That he, at the time, was satisfied it could not be a person with a lantern, because it went so swift, and also because it did not cast any shadow as it passed the trees. That he mentioned the circumstance at the Upper House, the next morning, when he was told that he had seen a "Jack o' Lantern." That upon another occasion, namely, about eighteen years ago, at a boggy spot in Pivany Meadow, he was within three or four yards of a "Jack o' Lantern," and thought he smelt something like sulphur, but it immediately afterwards flitted away, and he saw no more of it. That he could not tell whether the sulphureous smell came from the "Jack o' Lantern" or the boggy spot. That the light of them is just in appearance, like, and about as strong, as the light from a small horn lantern, such as are used in stables

and by country people. That sometimes they appear near to the beholder, and then, in the twinkling of an eye, at a considerable distance. That at other times they will stay for some time near one place, and flit up and down and also move about horizontally, like as if a person was looking about for something with a lantern.

Susannah Booth, wife of the above named Thomas Booth, also informed me that in January, 1834, at near eight o'clock at night, she saw a "Hobany's Lantern," at the distance of between two and three hundred yards, at a wet rushy place in Lamsate Meadow. That it moved very quick up and down, about as high as a man's head, but did not see it move horizontally. That she stood at the bottom of Storage Common, and looked at it for about five minutes. That the light was like the light from a small horn lantern, and about as bright; and she also said, that she had seen a similar appearance there once or twice before.

Another person, of the name of Samuel Stead, who lives at a cottage called Pain's Castle, on the north side of Alfrick, also told me as follows, namely, that he was then 63 years old, and had seen "Hob and his Lantern" twice in his life. The first time he saw it, was when he was quite young, and the second time he saw it in the damp part of a piece of arable land,

called Eycester, at the back of his cottage, as he was returning home one night in the winter, about six or seven years ago, from a neighbouring farm called the Folly. That at first he thought it was a lantern at the distance of two or three fields from him, but afterwards found as he approached nearer, that it moved about in various directions, and often flitted up and down three or four yards high, for some length of time. That upon his getting into the Eycester field, where it was, and within about forty or fifty yards of it, it flitted at the height of eight or nine feet over the hedges and garden between his and a neighbouring cottage, to the other side where there is a dingle, and he then lost sight of it. He also stated, that he saw it from first to last for about ten minutes.

A gentleman and lady residing at Old Storage also informed me, that in the autumn of the year 1815, as as they were walking from the house called the Stocks, to Tundridge, both in Suckley, they saw at about nine o'clock at night, a "Will o' the Wisp" in an adjoining meadow, down in the flat near the brook, belonging to the Stocks estate. That it was sometimes about a hundred and fifty, and at other times about fifty yards from them, and they looked at it for four or five minutes. That it moved in a gliding way up and down, and made a kind of arch in its progress from

place to place. That it appeared sometimes to have a quivering motion, as if agitated by a breeze. That the light was like that from a horn lantern, and about as strong. That an old man of the name of John Corbett, was following them at some distance off. That when they got to Tundridge, the old man was some time before he arrived, and when he did he was covered with dirt, and said that, being dim-sighted, he had for some time followed what he thought was a person with a lantern, and which had led him considerably out of his way ; but that, at length, having called out, and not receiving any answer, he found he had been deceived. The aforesaid gentleman also informed me, that one evening in the autumn of the year 1827, as he was passing over Knightsford Bridge, he saw a similar appearance in the adjoining meadow, by Teme side, called Knightwick's Ham, and that he stood on the bridge for some time to look at it.

An old gentleman residing at the Brick Hall Estate, in Knightwick, also informed me that he has several times in the course of his life seen the Ignis Fatuus in that parish, and also in Horsham Meadows, near Knightsford Bridge, and represented its appearance and motion to be as last above stated.

Another gentleman also informed me that as he and some of his friends were, several years ago, riding

along the road in the parish of Powick, they saw a "Will o' the Wisp" on Powick Ham, and they rode towards it, but it vanished in the fog upon their approach.

I have also been informed that it has been seen at Brook House, in Powick, and that the following were the particulars, namely, a young gentleman one evening at the latter end of the autumn of 1832, (after a previous day's heavy rain, which swelled the brook bank-full) saw from the garden at Brook House, a light, about forty or fifty yards off, just across the brook in the adjoining then very wet hop-ground, which he at first thought was a lantern carried about by some person, but, afterwards, observing it flit up and down in a strange way, he called the attention of the man-servant to it, who, upon observing it said that it was a "Will o' the Wisp," and that he had seen similar appearances before.

From what I have stated above, I think it will clearly appear that the existence of the Ignis Fatuus is not only proved, but that the evidence adduced has also given a complete clue to the cause of the phenomenon, for it is thereby evident that such appearances are principally, if not invariably, seen after wet weather, in or near the winter season, in boggy, sour, sulphureous and foggy places; and therefore I submit

that they are *electric meteors*, as will appear as follows :—

In the Encyclopædia Britannica, under the head “Electricity,” it is stated that there are streams of electric matter from the earth ; that moisture is a conductor of electricity ; that there is a great quantity of electricity when it is cloudy and rainy ; that sulphur is an electric body ; that rain is generally, though not always, electrified *negatively* ; and that Mr. Cavallo, from his observations on the electricity of the atmosphere, deduced the following conclusions, namely :—

“That there is in the atmosphere, at all times, a quantity of electricity. That the electricity of the atmosphere, or fogs, is always of the same kind, namely, *positive*. That, in general, the *strongest* electricity is observable in thick fogs, and also in frosty weather ; and the *weakest* when it is cloudy ; warm, and very near raining ; but it does not seem to be less by night than by day.”

Now we may conclude from the above, that the rain must be considerably charged with the electric matter, particularly in the winter season (when electricity is the strongest,) and that it then carries a great quantity of such matter with it into the earth ; and therefore I submit that the Ignis Fatuus is caused

by the electric fluid escaping again, by degrees, after the rain, out of the earth, into the cold foggy atmosphere, at such sour, boggy, and sulphureous places as above mentioned: and that the moisture of such places either acts as a conductor to the fluid, or that the fluid acts as a conductor to the moisture. That upon such an electric exhalation (which may be termed negative) coming in contact with the cold foggy air (which may be termed positive) it would occasionally become luminous, and continue so for a time, unless the electric matter should be so strong as to go off in a spark or flash. That the Ignis Fatuus, would afterwards flit about in its globe, or lantern, of fog, or mist, until it should be gradually absorbed by the atmosphere, or until it should come in contact with an electric body of an opposite quality, when it would be either discharged or soon become dissipated. That the fact of the sulphureous smell which accompanied the Ignis Fatuus mentioned by one of the examiners as having been seen by him at the foot of Storage, appears to prove that the phenomenon in question is connected, at least in some cases, with the remarkable electric qualities of sulphur, excited, perhaps, in the boggy spots, by the rain, and producing a kind of spontaneous electricity.

With respect to the generally admitted fact, that

the Ignis Fatuus either flits to a distance, or vanishes entirely, at the near approach of man, perhaps it may be accounted for upon the electric principle that two *positives*, or two *negatives*, do invariably repel, and one *positive* and one *negative* do invariably attract each other; and that in the former instance the meteor would flit to a distance, and in the latter that it would become absorbed, and vanish.

BLACK RATS.

WITH respect to that scarce animal, the Old English Black Rat, (now nearly annihilated by what is called the brown Norway breed,) I procured and sent four of them to the Museum of our Society, which were killed in January, 1834, at Mr. Dowding's, of Wick; and I was then informed that the rat-catcher who caught the above specimens declared that he had never seen but one at any other place. Several other persons also then stated to me that they had heard of but had never seen any. I recollect, when I was quite young, it used to be remarked by old persons that the black rats were then almost extinct, and they

also stated that there was a popular saying in their juvenile days, that "the brown rats which now prevail in this kingdom, came from Hanover with George I., and that they had eaten up nearly all the old English black rats." Now, although the allegation that they actually came from Hanover, as above stated, might have been a political squib, yet I think the saying completely proves that within the knowledge of a few generations back, there was a change of dynasty in the barn as well as on the throne; that the brown rat is not an aborigine; and that the black one is "a good old English gentleman of the olden time."

After the above was written, I received the following further information relative to the black rats, and as I am anxious to preserve the history of the latter days of this almost exterminated race, I have given the evidence at length, as follows:—

Thomas Booth, of Old Storage, in Alfrick, then aged 67 years, told me that he never saw but one black rat in his life, and that was about twenty years ago, at the Lodge, at Leigh, as they were repairing a drain, out of which it ran into a pool, and escaped. He also said that he had frequently heard talk of them, and understood that they were nearly all destroyed by the brown rats which came from Hanover.

Samuel Stead, of Alfrick, then aged 63 years, also

informed me that when he was quite a boy, and lived in service at Cherken Hill, in Leigh, there were more black rats than brown ones, at that time, at such farm, but that he could not tell the comparative numbers at such time at other estates. That in or about the year 1795 he went to live at the Upper House, as waggoner, and that during the first two or three years of such service he saw three or four black rats in the buildings, but did not see any afterwards. He also said that he understood the black rats were nearly all destroyed by the brown ones which came from Hanover with George I., and added that the brown rat is a much larger, stronger, and more ferocious animal than the black one.

Richard Woodyatt, who lived near Old Storage, aged 48, also informed me that he never saw but one black rat in his life, and that was in the parish of Kempsey.

Mr. John Pressdee, of the London Road, near Worcester, also informed me that about twenty-five years ago, as he and others were destroying the rats in the barn at Fox's place, near Hopton, in Leigh, they discovered, under some straw, seven or eight black rats, all as if in a nest together, the whole of which they killed. That he never saw any before or since; and he stated that the black rat is very

different from the dark-coloured water rat, the latter being much the thickest animal, and has a short tail, while the former has a very long tail; and added that he had frequently heard it said that the old English rats were black, and that the brown ones came from Hanover.

A gentleman, of Alfrick, also informed me that about eight or nine years ago, seven or eight black rats were killed in the barn at the Grimsend, and that he once shot one by the water side, at the paper mill in Alfrick, but never saw any before or since.

Another person also informed me that about twenty years ago he saw a black rat which was killed at a small farm house called Clay Green, in Alfrick, and which was the only one he ever saw.

Since I wrote the above, I have enquired, and find that no black rats have been seen at the Cherken Hill farm house for a great many years, therefore the colony which was there, as before stated, has become extinct.

It is observable that although our naturalists call the brown rats the Norway breed, yet they are here invariably described as Hanoverians.

A learned writer¹ of the present day has, I am informed, stated his opinion that the black rats have

¹ Dr. Fleming.

not been exterminated, or nearly so, by the brown ones, but that they could not accommodate themselves to the march of improvement in this country, and have therefore gradually become almost extinct. Now, in answer, I beg leave respectfully to ask, how then does it happen that the brown rats, upon their introduction into this country, by the ships from Norway, India, Persia, or wherever they came from, should immediately not only accommodate themselves to a very different climate, but also to all the various grades of houses and barns in this country, from the proud "palace to the humble cot," while at the same time the black rats, as natives, had only to fall in with the very gradual and almost imperceptible change which was going on in the habits and dwellings of mankind; and we know that the different races of mice have continued undiminished through all such changes.

From all the above facts, I submit, in conclusion, that the brown rat has not only nearly destroyed all my unfortunate clients, but such is the ferocity of his nature that he also frequently destroys and devours his own particular species, as will appear as follows, namely :—

John Phillips, of the City of Worcester, ratcatcher, lately informed me that such is the ferocity of the brown rats towards each other, that they not only

often destroy one another in the barns, but that if they are confined in cages they will frequently kill and devour their fellow prisoners, first eating out their brains ; and also that if a dead rat is thrown into the cage they will eat it up. That he had frequently set them to fight in a cage by merely pinching the tail of one of them, and that such battles generally ended in the death of one or more of the antagonists. That he scarcely ever found any nests of young rats in those barns or ricks where there are a great many old ones ; and said the reason is because the swarm would devour the young, and therefore that the females find a more solitary place for their litters. That in those places where there are many rats, he scarcely ever found mice in any quantities, as the rats will destroy them. That when he has, by chance, while rat-catching, driven a mouse into a rat hole, he has often heard them kill it, and that he had frequently thrown a mouse into a cage of rats, who immediately devoured it. He also said that he had occasionally killed three or four black rats, among a great number of brown ones, at Mr. Onley's of Bransford, Mr. Watkins's of Pixham, and Mr. Horton's of Kenswick ; and that the black rat is considered to be the old English breed.

I find it is stated in the *Encyclopædia Britannica*

that the brown rats are natives of India and Persia, and that they were not known in Europe before the last century : and in several of the Natural Histories it is also stated that they were introduced into this country, from Norway, at the commencement of the last century. Now it is worthy of remark that this date exactly corresponds with the time of the accession of George I. However, whether the brown rats actually came from Hanover or not, it was very natural for the people to couple the two concurrent circumstances together, and make what was then no doubt considered a good political joke upon the subject ; and we all pretty well know that even in these our days, allusions are sometimes made relative to rats and ratting in political affairs.

DRY ROT.

GREAT complaints having been made of late years of the dry rot in timber, particularly in the navy, I recollect I once asked my late father his opinion as

to the cause of it, who said he conceived that it arose from the practice (on account of the value of the bark) of felling the timber in the spring of the year, when the sap is flowing, and then stripping off the bark, which immediately exposes the timber to the alternate heat and cold of the spring days and nights, and thereby drives the checked sap into the interior of the wood, which brings on inward corruption and animalculæ, called dry rot. But, he observed, that if the timber upon being so felled and stripped of the bark, was then hewn out in the rough, or cut into pieces suitable for future uses, to make it as portable as possible, and shortly afterwards immersed in water and there left for several months, or even years, (according to the size of the timber) to soak, he conceived it would completely remedy the evil; for that he had almost all his life been in the habit of having the young timber trees, called black poles, so soon as cut out of his woods, in the spring, for the spokes of carriages, &c., immersed in a moat for several months, and when taken out they were in very fine condition for manufacture, free from cracks, very durable in comparison of those not soaked, and the sap part of the wood, almost, if not quite as good as the heart; and that he never knew of timber so immersed having the dry rot; and that black

poles not so prepared were generally full of cracks and grub holes, and scarcely fit for spokes, particularly the sap part of the wood. That he believed timber, in olden times, was felled in the winter,¹ when the sap is not flowing, which he conceived was the cause of no dry rot appearing in the timber of some of our most ancient buildings ; but he said it was not likely that the growers of the present day would, unless under special contracts, fell their timber in the winter, because they would thereby lose the bark, as it will not then peel from the trees.

Now from the above it would appear that the water gradually extracts the sappy fluid from the timber, and thereby remedies the evil of felling it in the spring, and also preserves it from the action of our variable climate, and nourishes it until the wood gets seasoned. But should it be asked how it would be possible, upon a general scale, to immerse in water such large pieces of timber as are required for the navy, &c., I admit it would be difficult in some situations, but submit that it must be done for a period, according to the size of the timber, either in

¹ In the Gentleman's Magazine, published in December, 1833, there is an account relative to Grove House, at Woodford, in Essex, which was decorated with German paintings, in fresco, of the time of Queen Elizabeth, and the subject of one of the paintings is "the felling of trees in the *winter season*."

ponds, or as rafts moored to the banks of rivers, or on the sea shore;¹ or, otherwise, that the timber must be felled in the winter instead of the spring, and sacrifice the bark, which I understand may be averaged at full one fourth of the value of each tree.

I have only one more suggestion to offer upon the subject, namely, that timber trees when felled in the spring, and stripped of the bark, and cut out in the rough, should, if they cannot be immersed in water, be immediately afterwards buried, by throwing a mound of earth on them, and let them remain in that state until seasoned. Perhaps this would act as a substitute for the immersion in water, and indeed the occasional discovery, even in these our days, of antediluvian forests imbedded in the earth, appears strongly to favour this plan.

After I wrote the above, I was informed by a timber merchant, that he had no doubt that timber *well soaked*, although cut in the spring, would be better even than timber cut in the winter, *if not soaked*, as there is some sappy fluid in the wood even in the winter. Indeed there may be chemical and other reasons, why timber felled in the spring, if well soaked

¹ There might be an important question as to the comparative merits of salt and fresh water for the above purpose.

and all the sappy fluid extracted, would be better even than if felled in the winter, as the trees in the spring are under the action of renewed vigour from the great flow of sap then passing through them. This is a very important subject, and well worthy the attention of the government,¹ both in public buildings and naval architecture.

TURKISH OAKS

AND

VALONIA.

OUR merchants are now in the habit of importing into this country, from Smyrna, the Morea, and other places in the Mediterranean, the cups of the acorns of Turkish Oaks, called Valonia, as a substitute for British Oak bark; and I understand one hundred weight of Valonia is equal in value to about two hundred weight of our bark; and supposing that

¹ I sent a copy of the above remarks relative to the dry rot to the Lords of the Admiralty, on the 7th of August, 1834.

a full grown tree will in its native soil, produce upon an average three hundred weight of Valonia per annum, the same at the market price in this country, of about fifteen shillings per cwt., would amount to £2. 5s. a year. Therefore, I submit that it would be well worthy the attention of our landed interest (instead of planting so many useless lime trees) to endeavour to cultivate the above species of oak in this country, particularly in parks, pleasure grounds, and hedge-rows, and obtain therefrom an annual profit which might be very considerable, although the crop here should not be near so large in quantity, or so good in quality, as it is abroad. I have some of the foreign cups now lying before me, the largest measuring six inches in circumference, but I understand the small cups are the best, and that those from Smyrna are much better than those from the Morea. Therefore the Smyrna species of tree should be preferred for culture here.

There is a species of Turkish oak now growing at Boughton House, near Worcester, which although quite young, has borne acorns for the last two years. It thrives much faster than the British oak, but I am informed it is not the species which bears the Valonia. Some of its cups and acorns now lie before me, which are about the same size as the British, but

the acorns are a little longer, and the cups are covered on the outside with a kind of mossy curls, whereas the Valonia is bristled with short thick studs.

There are several sorts of foreign oaks including Turkish, at the Earl of Coventry's, at Croome; but as no cups are obtainable at this spring season of the year, it cannot at present be ascertained whether any of them bear the Valonia or not.

PARTICULARS OF A STRATUM AT POWICK, AND BROMWICH HILL, NEAR WORCESTER,

PROVING THAT COAL IS VEGETABLE MATTER.

IN the note to page 41, I referred to the discovery of a mammoth's molar tooth, at the bottom of a gravel pit at Powick Manor Farm, situated about three miles from Worcester: since then I have examined that range of pits which commence near the farm-yard and run nearly all across the middle of the adjoining field, or tongue of land, called "Barn Close," situated between the two roads, one leading to Malvern and the other to Upton: and I found that a remarkable jet black thin stratum of soft matter, averaging from about an inch to three inches thick, runs horizontally throughout nearly the whole of the Pits, at from about five to eight feet deep, which the workmen said they thought was rotten-stone, but upon examination I found it to be wood and other vegetable matter, turned partly into coal; and upon holding some of it in the flame of a candle, till it became dry, it ignited. Now whether this stratum would, in the course of ages, ever have become perfect coal, is a question. Perhaps the

earth beneath the gravel bed, or such bed, does not contain enough of the “fiery spume of fat bitumen,” sufficiently to saturate the wood and other vegetable matter so as to form it into perfect coal; or the *quality* of the above wood might not have been congenial to the absorption of bitumen. However, I submit that the above stratum completely establishes the fact that coal is of vegetable formation. There are a few nodules of such black matter interspersed throughout the gravel-bed, and some part of the said matter appears to be stone, corresponding with what is commonly called “slum” in coal; and being quite of a different quality from the gravel stones, as the latter are not at all discoloured by the jetty matter, even where they lie close to the stratum. The said gravel-bed averages from nine to twelve feet deep.

Since I wrote the above, an experienced chemist, namely, John Wheeley Lea, Esq., High Sheriff of Worcester, has been kind enough to try experiments upon specimens of the above matter, and has reported to me as follows.—

“The three specimens left with me are all inflammable; but that which has a peaty and mixed appearance, is the least so. An alkali results in the burning, but I have not been able to separate any bitumen.

I believe that the whole of the specimens are wood in the state of transition to coal, but more or less mixed with sand and other earthy matter.

J. W. Lea."

"To Jabez Allies, Esq.

"April 29, 1835."

This stratum appears to me in some measure to correspond with what is called "bruch" coal, which forms the upper strata of the coal-fields, and resembles fir wood in the grain of it. Now it may be a question whether the best coal which lies below the bruch, and contains the most bitumen, was not formed from immense forests of oak, or some other large heavy trees, which were prostrated by the Deluge and covered by the sand and other earthy matter; and that the inferior strata of coal which lie beneath the best coal were formed from roots, underwood, and other vegetables, which either grew or were carried by the Deluge under the prostrated trunks of the forest trees, in several strata, according to local circumstances or conflicting currents. And that the bruch coal was formed out of fir and other light trees, which were either torn up by the roots or broken off by the waters, and floated for a time therein, and then settled down, from time to time,

according to their specific gravities, as the waters became more tranquil, in several strata, upon the then top of the sand and earth, which covered the forest trees; and upon each of which strata of wood or vegetable matter, the waters would deposit sand and earth, &c., and ultimately covered the whole with the upper stratum of sand and earth, upon the retiring of the waters. This hypothesis may perhaps be more clearly understood by taking the South Staffordshire Coal Fields as an example.

It appears from the lectures of Dr. Ogier Ward,¹ that "This coal formation consists of eleven beds of coal, separated by others of clay and shale, containing iron stone. There are five above and as many below the main, or ten yard coal, which is formed by thirteen different layers, some lying close together, others separated by thin 'partings' of slate clay. None of the beds above the main coal are worth working, their united thickness amounting to only nine feet; but those below it are of great value, being collectively, fourteen yards in thickness. The general dip of the strata is south-easterly, and as the extent of the field to the east, is not known, it is possible that it may join the Warwickshire field (the

¹ Vide "Analyst" for May 1835, No. X., p. 250.

dip of which is to the south-west) and thus form a basin, whose centre would be about Castle Bromwich, or Coleshill."

Now I submit that the five strata below the main, were most probably formed in the following manner, namely—the lowest or first, from the deep roots of the forest trees; the second from the shallow roots of the underwood; the third from the moss and other vegetable matter upon the ground; the fourth from the underwood itself, as it became prostrated by the flood; and the fifth from the boughs of such heavy trees and other vegetables as were deposited by the waters before the fall of the forest trees—all which five strata "being collectively fourteen yards in thickness." Then we come to the prostrated forest trees, with layers between the boughs, as they gradually settled down, and which trees formed "the main or ten-yard coal." Upon that was deposited the trees which floated, and which we may suppose to have been of five species, and which settled down from time to time according to their specific gravities, and "their united thickness amounting only to nine feet." Between each stratum of wood the clay and shale would be deposited by the waters of a thickness corresponding with the length of time between each deposit of wood; or according

to the quantity of clay or shale in solution at the time, or according as the waters were then more or less agitated.

As "the fossil plants found in the strata alternating with the coal-beds are chiefly allied to the fir, cactus, reed, and fern tribes,"¹ I submit this shews that the Deluge commenced when the oak and other forest trees were not in leaf; and as the Deluge did commence on the 17th of the second month of the year, does not this strongly support the hypothesis that the creation of man took place, and the antediluvian year began in the spring of the year, (and most probably in the month Nisan, otherwise Abib, the first month of the Jewish sacred year, and which corresponds with the latter part of our March and the first part of our April,) instead of in the Autumn, or the month Tisri, (the first month of the Jewish civil year,) and which answers to the latter half of September and the first half of October. It is quite clear that the Antediluvians knew the exact length of the solar year, as is shewn in the "Universal History," and also by Dr. Adam Clarke, in his commentary on the 14th verse of the 8th chapter of Genesis. Vide further on these points, under the head "Sphinx."

The commencement of the Jewish civil year,

¹ Vide p. 251 of the same Lecture.

corresponded with the time of the beginning of the Egyptian year, or very nearly so; and most likely the long bondage of the Israelites in Egypt, had necessarily identified the two calendars, and produced this civil year mode of calculation by the Israelites, so far at least, as respected their civil affairs; but upon the Exode and the institution of the Passover, God himself expressly directed that the month Abib should be observed as the first month;¹ in order, first, I submit, to bring back the observance, of the commencement of the year, to its true antediluvian time (so far at least as concerned ecclesiastical affairs;) second, to mark the exact season of the year in which the flood took place; third, to shew the true time of the Exode and Passover; and fourth, to shew the exact season in which Christ, the true Passover, should be and was crucified. These were the four most remarkable epochs in the history of the world, and I submit that they all happened at or about the same time of the year.

If the Flood had commenced shortly after the autumnal equinox, instead of the vernal, the forest trees would then have been covered with withered

¹ I find Houbigant and others, in their commentaries on the 12th of Exodus, contend that the sacred year was not a new institution, as some have thought, at the Exode, but that it had always commenced in the month Abib. Vide Dr. Adam Clarke's commentary thereon.

leaves, and I submit the coal formations would have abounded with them ; but the absence of such remains, I take it, strongly supports the vernal equinox hypothesis, unless indeed we can be led to believe either that the rush of waters at the Flood drove all the withered leaves from the coal-fields, (which is not at all likely,) or that *withered* leaves would not form any remains.

I also submit that the general absence of the remains of the forest tree leaves¹ in the coal-fields, proves that the formation of such fields must have arisen at one great epoch, for if they had been deposited at several epochs, we should have had abundance of leafy remains in the coal-fields corresponding with the various seasons of the year in which the formations took place.

On that side of the aforesaid Powick gravel-pit field bordering on the Malvern Road, where the workmen are now excavating round a new-erected Gothic cottage, the bones and teeth of several sorts of animals have lately been dug out of the gravel-bed just below the black stratum, at the depth of between five and six feet, and about four feet above the bottom

¹ Should there be any exceptions to this rule, I submit that the leaves forming such exceptions were either those of trees which leafed very early in the spring, or that they were of the evergreen species.

of the bed. Some of these organic remains now lie before me, and I am told by several gentlemen in the surgical profession that they consist of a fragment of a leg bone, and of the right hip and thigh bones of a sheep. Two fore teeth of a cow or bull, and a piece of a hip bone, probably of the same animal. A part of the skull, the humerus or arm bone, and the left side of the under jaw-bone of a puppy, with one permanent molar tooth in it, and the other ones partly appearing. Also a fragment of a bone which is yellower and heavier in proportion than the rest, and which is thought by some to be part of the ulna, or radius, of the human arm, but others are of opinion that it is not a human bone. Perhaps the fragment is not sufficient to lead to a positive decision on the point; but it is rather singular that even the workman, who dug it out of the gravel-bed, observed to his companions, at the time, "This is like the bone of a Christian." The two workmen who procured all the above specimens are quite positive that the gravel-bed had never before been broken into or disturbed in those parts where such remains lay; and I have most carefully examined the several spots (which lie very near each other,) and am quite satisfied that their statements are correct.¹ It is very remarkable that

¹ They have also given me a piece of the breast bone of a large bird which they found in their riddle as they were separating the sand from the gravel; but they

there should be grouped near together, in one gravel-bed, fragments of the bones of the three principal domestic animals, namely, the cow, the sheep, and the dog; and I submit that this is a strong proof (without taking the doubtful bone into account) that this county was not only inhabited by such animals, but also by man, before the Flood; and that it was considerably advanced in civilization.

As the above gravel-bed range at Powick lies upon a considerable elevation of marl, the deposits therein could not have been made by any partial inundation; and, looking at the nature of the ground, it does not appear probable that such gravel could have been brought to the place in question from any point but the south or south-east; for the Malvern, Storage, Suckley, Hall House, Ankerdine, Berrow,¹ Woodbury, and Abberley chain of Hills, flank the south-west, and west, and north-west side; and on the north and north-east, and east, it is skirted by a sharp rising ground which runs parallel with the River Teme, and within about half a mile of it; therefore I submit that the above facts are additional proofs of the truth of Mr. Kirwan's theory, that the waters rushed principal-

cannot tell what part of the bed it came from. Thomas Robinson, a bird-stuffer employed by our Natural History Society, says he never saw one like it before.

¹ I omitted to mention in the Note to p. 48, that the modern coal-shaft therein referred to is situated on the west side of the Berrow Hill.

ly from the south or south-east at the Noachian Deluge, and I also submit that the bones of the animals were buried in the gravel by the rolling of the waters before the Flood got to its height ; and that the vegetable matter which formed the above black stratum, and which generally lies beneath or upon a thin layer of sand, was like such sand deposited or settled down at the present depth when the waters were at their height, and in a comparatively quiescent state, and was afterwards covered with the upper gravel by the retiring of the waters in the manner as before suggested.

With respect to the before mentioned remarkable fact, that the general dip of the South Staffordshire coal fields is south-easterly, I have to observe, that a forest of trees prostrated by a rush of waters from the south-east, would of course lie with their heads to the north-west ; and as the heads of such trees would be much higher upon the ground than the butts of them, the dip would consequently be south-east, even if the ground did not slope that way. The dip of some of the coal fields, might, however, vary from the above line, on account of the intervention of hills and other local circumstances ; and it appears as above, that the dip of the Warwickshire coal fields is to the south-west. I would also here add, that it is believed by many, that Noah up to the time of the

Flood, lived much to the south of the mountains of Ararat, (perhaps in Egypt,) and taking it to be so, the resting of the ark upon those mountains, is an additional proof of the rush or bearing of the waters from the southward at the commencement of the Flood. The ark, perhaps, did go farther north than Ararat, and was brought back again to that range by the retiring of the waters.

There are also gravel-pits at Bromwich Hill, by Bromwich House, (being about half a mile from Worcester,) in which a similar black stratum runs at about the same depth as that at Powick. This hill is also flanked on the south-west, and west, and north-west by the before-mentioned chain of hills; and on the north, and north-east, and east, it is skirted by a sharp rising ground, which runs parallel with the line of the River Severn, and within about half a mile of it. The workmen at one of these pits lately dug out from the bottom of the gravel, at the depth of about twelve feet, a fragment of a bone of some large animal, and which fragment lay upon the top of the marl.

Upon all the gravel being taken out of the above pits at Powick and Bromwich Hill, they are filled up again with earth by the workmen, therefore I presume that in a few years every vestige of them will have passed away.

THE SIGNS OF THE ZODIAC MOST PROBABLY ANTEDILUVIAN.

IN page 82 I referred to the coal-fields as an evidence not only of the Noachian Deluge, but also as a proof that the Antediluvian solar year commenced at or about the vernal equinox ; and I have now to submit that the Twelve Signs of the Zodiac are likewise not only a proof of the above facts, but also that they are heiroglyphics of the Antediluvian Patriarchs, in their order of succession, or of the times in which they lived, and which I think will clearly appear as follows.—

ADAM AND EVE.	}	The time of their creation and fall was, I submit, represented by	{	ARIES AND TAURUS.
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the two species of clean beasts which appear to have been sacrificed immediately after the taking of the forbidden fruit, in order to make an atonement ;¹ and with the skins of which animals the transgressors were clothed, (vide Gen.

¹ The best commentators are decidedly of opinion that such sacrifices were made immediately after the fall.

ADAM } III. 21,) and therefore, that these { ARIES
AND } remarkable events were designated { AND
EVE. } by the signs of the Ram and the
Bull.

In the sign Aries, we see a type of the Lamb that was slain, from the foundation of the world.

In the sign Taurus we have not only a representation of the other principal sacrificial victim, but the Bull was also an emblem of the cherubim ; for what is called the face of an ox, in the tenth verse of the first chapter of Ezekiel, is called the face of a cherub, in the fourteenth verse of the tenth chapter of that book. Perhaps the Ram represented another cherub, and therefore two cherubim were made for the ark, and one placed at one end, and the other at the other end of the mercy seat,¹ in order to shew that mercy could not possibly be obtained in any way but through sacrifice. And

¹ Vide Exodus, chapters 25, 37.

ADAM } these animals being horned pro- { ARIES
 AND } bably gave rise to what was called { AND
 EVE. } the horns of the altar.¹ TAURUS.

As these were burnt sacrifices, or sacrifices “made by fire unto the Lord,” and as fire was an emblem of the seraphim,² or angels and ministers of heaven, I therefore submit that we here have the meaning of the cherubim and seraphim making continual intercession unto God in the daily sacrifice, until the angel of the covenant, (of whom the above were types) became incarnate, and offered himself as the great Atonement. And it is also observable, that *cherubim* and a *flaming sword* were, immediately after the fall, placed to keep the way of the tree of life ; and perhaps, also, to point out, or typify, that for ever afterwards man could not by any means partake of that tree but through

¹ Vide Exodus, chapters 27, 38.

² Vide Dr. Adam Clarke’s commentary on Numbers, chap. 21.

ADAM } sacrifice and death.—Not only { ARIES
AND } Noah and Abraham and his de- { AND
EVE. } scendants offered sacrifices of clean TAURUS.

animals unto God, but almost all the heathen nations imitated these sacred rites in their idolatrous worship ; and it is rather remarkable, that Balaam, (who was an Ammonite, of Mesopotamia, according to Houbigant, and Dr. Adam Clarke,) made a *joint* sacrifice of the two species of animals in question, unto the Lord, in Moab, before Balak, namely of seven oxen and seven rams, upon seven altars, that is say, a bullock and a ram upon every altar ; and this he repeated several times ; vide the twenty-third chapter of Numbers.

Jupiter, the mythological common father of gods and *men*, and the father of *light*, and of the *day*, was worshipped in the shape of an image with the head of a ram, by the Egyptians, and also by the

ADAM } Ammonites, or descendants of { ARIES
AND } Ham, in Lybia, and was by them { AND
EVE. } TAURUS.
called Jupiter Ammon, (or Ham-
mon.) A bull was sacrificed to
Jupiter by several heathen nations;
and he was also worshipped as
Fire.

Juno, the mythological wife of
Jupiter was worshipped under the
form of a white heifer by the
Egyptians; and a white cow and
oxen were sacrificed to her by
other nations.

These idolatries were most pro-
bably corruptions of the above
Aries and Taurus signs, and also
of the cherubim and seraphim, and
a deification of Adam and Eve.

CAIN } It appears Cain and Abel were { GEMINI.
AND } twins, (vide Dr. Adam Clarke's {
ABEL. } commentaries,) therefore I submit
that they were represented by the
sign Gemini.

The fact that Abel sacrificed or
offered the "firstlings of his flock"

CAIN } unto the Lord, strongly corrobo- { GEMINI.
AND
ABEL. } rates what I have stated above, {

relative to the immediate sacrifices
after the fall ; and the origin of
the Aries and Taurus signs.

SETH. } He was the "appointed," by { CANCER.
the Deity, to continue the holy {

line "instead of Abel whom Cain
slew ;" and born in Adam's "own
likeness and after his own image."

This favoured stock not being the
direct line, (Cain being disinherited,) was therefore, I submit, desig-
nated by the *indirect* course of
Cancer or the Crab.

ENOS. } At his birth, Man began "to call { LEO.
upon the name of the Lord," (or {

as the margin of the Bible has it)

"to call themselves by the name
of the Lord." Hence followed
the distinction between the de-
scendants of Cain and those of
Seth ; the former being called
"Sons of Men," and the latter

ENOS. } "Sons of God." As the Sethites { LEO. ☉
 } thus called themselves by the
 name of the Lord, at or about the
 birth of Enos; and perhaps, boldly
 as a lion opposed the then
 wickedness, and probable idolatry,
 of the Cainites, I submit, this
 period was therefore hieroglyphi-
 cally represented by the sign Leo.

The lion was not only the
 emblem of the tribe of Judah,
 but according to the Talmudists,
 this animal was also pictorially
 represented upon the standard of
 that highly favoured branch and
 royal line, from which the Messiah
 was to and did spring; and the
 Messiah was therefore called the
 Lion of the tribe of Judah.

CAINAN. } Perhaps the sign corresponding { VIRGO. ♍
 } with this Patriarch, was to shew
 that the Messiah was to be born of
 a Virgin.

It was declared by the Deity
 immediately after the fall, that the

CAINAN. } seed of the woman should bruise { VIRGO.
 the serpent's head; and which
 was literally fulfilled under the
 gospel; and the church under the
 law was called the virgin daughter
 of Zion.

MAHA- } As this patriarch was the cen- { LIBRA.
 LALEEL. } tral person (omitting Cain,) be-
 tween Adam and Noah, I submit
 that the period in which he lived
 was therefore designated by the
 sign Libra, or the Scales.

The ancient Egyptian planisphere, at Dandera, has the sign of the Scales, which I take it proves that it was an original sign, but if not, then Chelæ, the claws of Scorpio, was the original one.

JARED. } The fact that in the celestial { SCORPIO.
 sphere, the Scorpion is actually
 represented as biting the heels of
 the horse of the archer Sagittarius,
 appears to be an allusion to the
 curse upon the serpent or scorpion,

JARED. } namely "I will put enmity be-
 SCORPIO. } tween thy seed and her (the
 woman's) seed, it shall bruise thy
 head, and thou shalt bruise his
 heel."

In Jared's time the world had most probably sunk into the grossest idolatry and wickedness, and therefore I submit that such period was represented by the sign Scorpio, or the scorpion.

ENOCH. } The name of this eminent pa-
 SAGIT- } triarch was from chanack, which
 TARIUS. } signifies to *instruct*, to *initiate*, to
dedicate, and therefore he, I submit, was represented as Sagittarius, or the Archer, riding over all opposition, and piercing the ungodly with the arrows of rebuke, and in so doing he figuratively trampled upon and bruised the head of the serpent, or scorpion, and at length was triumphantly translated to heaven.

It is rather remarkable that

ENOCH. } Enoch alluded to the dart, or { SAGIT-
 arrow, in the name he gave to his { TARIUS.
 son Methuselah, and whereby, it
 is said, he predicted the Flood, as
 will appear under the next head;
 and we might be led to believe
 that Enoch, in this hieroglyphic of
 Sagittarius, is represented as point-
 ing out the then coming judgment
 of the Flood, designated by the
 signs Aquarius and Pisces, and
 shewing that such judgment would
 make an everlasting separation
 between the sheep and the goats,
 designated by the signs Aries and
 Capricornus.

Vide also the remarkable prophecy of Enoch, relative to the Flood, as quoted by St. Jude.

Christ, of whom Enoch was an eminent type, is also in the Revelations, (chapter 6) represented as riding on a white horse, with a bow in his hand, and going forth "conquering and to conquer." And he did bruise the serpent's

ENOCH. } head, by his incarnation, atoning { SAGIT-
 } blood, meritorious death, glorious { TARIUS.
 } resurrection, and triumphant as-
 cension; and declared that at the
 last judgment he will make an
 everlasting separation between the
sheep and the *goats*,¹ and that
 “then shall appear the sign of the
 Son of Man in heaven.”²

The fable of the Centaurs was
 most probably derived from the
 sign Sagittarius.

METHU- } It appears that in the time of { CAPRI-
 SELAH. } this patriarch, and of his son La- { CORNUS.
 } mech, and grandson Noah, that
 the alliances which were formed
 between the sons of God, or de-
 scendants of Seth and the daugh-
 ters of men, or descendants of
 Cain, brought on general apostacy
 and wickedness, and the earth was
 therefore ultimately visited with
 the judgment of the universal
 Deluge; and perhaps no figure

¹ Vide Matthew, chapter 25.

² Ibid, chapter 24.

METHU- } could better represent this debased { CAPRI-
 SELAH. } state of society than the Goat, or { CORNUS.
 Capricornus.

The result of such unions of the Sethites with a most polluted race, was, I take it, very aptly personified or caricatured by the half man and half goat figure of the heathen god, Pan; and it is very remarkable, that in the Egyptian Sphere, the sign Capricorn was represented by a goat led by Pan, with a wolf's head.

Dr. Adam Clarke states in his Commentary on the seventh chapter of Genesis, that "Dr. Lightfoot very probably conjectures that Methuselah was alive in the first month of the year of the Flood; and that his father Enoch, almost a thousand years before, in the spirit of prophecy relative to the Flood, named him 'Methuselah,' which signifies they die by a dart, or he dieth and then is the dart; or he dieth, and then it is

METHU- } sent ;¹ and thus Adam and Me- { CAPRI-
 SELAH. } thuselah had measured the whole { CORNUS.
 time between the Creation and
 the Flood, and lived about 240
 years together."

LAMECH. } As the judgment of the Flood { AQUA-
 was approaching near in the time { RIUS.
 of this patriarch, that period was
 therefore, I submit, very emblematically
 represented by the sign of
 the water-bearer, or Aquarius.

NOAH. } The sign Pisces, or the fishes, { PISCES.
 was not only a most apt emblem {
 of the Deluge, but also of the
 preservation of the holy line, at
 that tremendous judgment; and
 this appears to be alluded to by
 Lamech himself, when he called
 his son's name Noah, and said
 "This same shall comfort us con-
 cerning our work and the toil of
 our hands, because of the ground
 which the Lord hath cursed."

¹ It is perhaps almost needless to add here, that the dart or arrow was consider-

If the figures and names of the most ancient signs, or constellations, had been of idolatrous instead of Divine origin, is it likely, I would ask, that the Deity himself would have spoken of several of them by such *names* in describing them as part of his own wondrous works,¹ as set forth in the Book of Job, chapter 38. And I must here add, what an instructive hieroglyphic lesson the Zodiac presents. In fact, its figurative language runs through the whole of the Old and New Testament.

THE SPHINX.

Most probably an hieroglyphical representation of the time of the commencement of the Antediluvian Solar Year, from the Creation of Man.

I SUBMIT that the original Sphinx was an hieroglyphical combination of the signs Aries and Taurus, to mark the time of the commencement of the antediluvian solar year, and from which the various

ed by nearly all nations as the emblem of judgment. Vide Dr. Adam Clarke's Commentaries on Deuteronomy, chap. 32.

¹ There can be no doubt, however, that the figures of many of the constellations were afterwards added by the Heathens.

sphinxes of all nations were derived. It appears from the accounts of modern travellers, that there are several sorts of sphinxes now in Egypt ; some having the likeness of a man's head and a lion's body, others representing a lion's body and a ram's head ; and another at Thebes, (which is partly buried in rubbish) is thought to be like the body of a *bull* with a *ram's head* ; and it is stated, that not any of the sphinxes now in Egypt resemble Leo and Virgo. It is most probable, that the Greeks upon seeing the sphinxes in Egypt took the idea of combining Leo and Virgo into a sphinx, thinking it would form a more beautiful composition in architecture than the Egyptian ones ; and also that it would be more flattering to their national vanity for them to appear as inventors instead of mere copyists.

The calendars of all nations in the early ages, particularly in that disturbed and grossly idolatrous period which elapsed between the confusion of tongues and the time of Abraham, were doubtless in a very imperfect state, and the calendar months frequently got out of place, and time was thereby miscalculated, owing to the surplus days, if the months were too long, not being regularly deducted, or the intercalary days if the months were too short, not being regularly added ; but if the great standard, the sphinx or

combination of Aries and Taurus, had always been understood and attended to, I again submit, that the exact time of the commencement of each solar year would always have been ascertained, by observing when the sun was between those two signs, and thereby the errors of calculating by the months might easily have been corrected.

It is quite evident, as I before stated, that the antediluvians knew the exact length of the solar year, as will appear from Genesis vii. 11, and viii. 14, and upon which Dr. Adam Clarke has commented as follows, "It appears that Noah was in the ark, a complete solar year, or 365 days; for he entered the ark on the seventeenth day of the second month, in the six hundredth year of his life, and continued in it till the twenty-seventh day of the second month, in the six hundred and first year of his life. The months of the ancient Hebrews were lunar, the first six consisted of thirty days each, the latter six of twenty-nine, the whole twelve months making three hundred and fifty-four days, add to this eleven days, (for though he entered the ark the preceding year on the seventeenth day of the second month, he did not come out till the twenty-seventh of the same month in the following year,) which make exactly three hundred and sixty-five days, the period of a complete solar

revolution;¹ the odd hours and minutes, as being fractions of time not computed, though very likely all included in the account."

As the months of the ancient Hebrews were lunar, and amounted together to but three hundred and fifty-four days, they were therefore obliged at the end of every three years, called the embolismic year, to add together the odd eleven days of each year into an additional month, and this they intercalated at the end of the sacred year, that is to say, after the last month called Adar, and such intercalary month they called Ve-adar.

Now this I submit, is a strong proof that the ancient Hebrew and Antediluvian year did begin at the vernal instead of at the autumnal equinox, that is to say at the time of the month Nisan, otherwise Abib, instead of at Tisri, or why did the ancient Hebrews intercalate as above stated, at the end of every third *sacred* year, instead of at the end of every third civil year. And here I think we have also a most remarkable coincidence and proof of the authenticity and divine origin of the Book of Genesis, for the account of the Flood therein completely corroborates the ancient Hebrew calendar, and such calendar com-

¹ It is worthy of observation here, that Enoch sojourned on earth exactly 365 years, that is as many years as there are days in the year.

pletely corroborates the Mosaic account, and that in a manner quite beyond the reach of any human invention; for such account proves, first, that the Antediluvian months must have been lunar, and amounted together but to three hundred and fifty-four days; secondly, that the Flood must have happened in either the first or second year after an embolismic year, and not in the embolismic year itself; and therefore that Noah remained eleven days in the ark beyond the seventeenth, namely to the twenty-seventh of the second month, in order to make up the exact length of the solar year. And thirdly, it proves that the Antediluvians did not intercalate the eleven days at the end of every year, but that they must have done so at the end of every three years, in order to keep the months to their proper seasons, and in accordance with the length of the solar year.

There is a very remarkable passage in Plutarch¹ which is noticed by Mr. Bryant, in his *System of Mythology*, as follows,² “Of Osiris being exposed in an ark, we have a very remarkable account in Plutarch, who mentions that it was on account of Typhon, and that it happened on the seventeenth of the month Athyr, when the sun was in Scorpio. This in my (i. e.

¹ Plut. de Iside et Osiride, p. 356.

² Vide *Encyclopædia Britannica*, vol. 5, p. 731, title Deluge.

Mr. Bryant's) judgment was the precise time when Noah entered the ark, and when the flood came, which in the Egyptian mythology was called Typhon."

Now in answer I beg leave to say that this passage from Plutarch is no proof that the Deluge happened at or about the autumnal equinox, instead of the vernal, but I submit that the real state of the case was this, namely, Plutarch learnt either directly or traditionally from the Pentateuch that the flood commenced on the seventeenth of the second month, and therefore as the Egyptian third month Athyr corresponded with the second month of the Jewish civil year, to within a few days, or perhaps exactly so at that time, he said it took place on the seventeenth of the month Athyr, and therefore I submit his error was in taking the second month after the commencement of the Jewish civil year, instead of the second month after the commencement of their ecclesiastical or sacred year for his date; and as the months previous to, and at the time of the flood, had not any proper names but were called the first, second, third, &c., months, Plutarch might therefore very easily have been led into the above mistake.

It has been thought by some writers that one of Joseph's dreams which he told to his brethren and father figuratively alluded to the twelve signs of the

Zodiac, and that Jacob also alluded to them when he blessed his sons. Dr. Adam Clarke has noticed these opinions in his commentary on the forty-ninth chapter of Genesis, and although the paragraph is long, yet as the subject is very interesting and bears strongly upon my point, I cannot therefore forbear setting it forth as follows.

“It has been conjectured that the eleven stars that bowed down to Joseph might probably refer to the *signs of the Zodiac*, which were very anciently known in Egypt, and are supposed to have had their origin in Chaldea. On this supposition Joseph’s eleven brethren answered to eleven of these signs, and himself to the twelfth. General Vallancy has endeavoured, in his “*Collectanea de Rebus Hibernicis*, Vol. VI. part ii, p. 343, to trace out the analogy between the twelve sons of Jacob and the twelve signs of the Zodiac, which Dr. Hales (*Analysis* Vol. II, p. 165) has altered a little, and placed in a form in which it becomes more generally applicable. As this scheme is curious, many readers who may not have the opportunity of consulting the above works, will be pleased to find them here. That there is an allusion to the twelve signs of the Zodiac, and probably to their ancient asterisms, may be readily credited; but how far the peculiar characteristics of the sons of

of Jacob were expressed by the animals in the Zodiac, is a widely different question.

“1. Reuben, ‘unstable (rather pouring out) as waters;’ the sign Aquarius, represented as a man pouring out waters from an urn.

“2. Simeon and Levi, ‘the united brethren;’ the sign Gemini or the Twins.

“3. Judah, ‘the strong lion;’ the sign Leo.

“4. Asher, ‘his bread shall be fat;’ the sign Virgo or the Virgin, generally represented as holding a full ear of corn.

“5. Issachar, ‘a strong ass;’ or ox, both used in husbandry; the sign Taurus, or the Bull.

“6 and 7. Dan, ‘a serpent biting the horse’s heels;’ Scorpio, or the Scorpion. On the celestial sphere, the Scorpion is actually represented as biting the heel of the horse of the archer Sagittarius; and Chelœ, ‘his claws,’ originally occupied the space of Libra.¹

“8. Joseph, ‘his bow remained in strength;’ the sign Sagittarius, the Archer, or Bow-man; commonly represented, even on the Asiatic Zodiacs, with his bow bent, and the arrow drawn up to the head; the bow in full strength.

¹ Query this, vide before as to the scales in the ancient Dandera planisphere.

“9. Naphtali, by a play on his name, taleh, the Ram ; the sign Aries, according to the Rabbins.

“10. Zebulun, ‘a haven for ships ;’ denoted by Cancer, the Crab.

“11. Gad, ‘a troop, or army ;’ reversed, dag, a fish ; the sign Pisces.

“12. Benjamin, ‘a ravening wolf ;’ Capricorn, which on the Egyptian sphere was represented by a goat, led by Pan, with a wolf’s head.”

Dr. Clarke added to the above, “What likelihood the reader may see in all this, I cannot pretend to say ; but that the twelve signs were at that time *known* in Egypt, and Chaldea, there can be little doubt.”

THE MOST ANCIENT OF THE PYRAMIDS ARE PROBABLY ANTEDILUVIAN.

WITH respect to the much controverted question, whether the pyramids, or at least the oldest of them, were built before the Flood, perhaps some expressions in and points connected with the sacred writings, might induce a belief that they were erected before

that time ; and I suggest that the Antediluvians, in the line of Seth, built them not only as places of worship, and observatories, and mausoleums, but also as depositories for their sacred and inspired records or hieroglyphic inscriptions ; and that by building them of such amazing magnitude and stability they had in view the preservation not only of such records but also of themselves from the then coming judgment which Enoch had predicted.

Perhaps it was in opposition to the pure worship which the descendants of Shem may have carried on at these pyramids (until the descendants of Ham got possession of the country, in Peleg's or Phaleg's time,) that Nimrod built the Tower of Babel, in the land of Shinar, and dedicated it, according to Hutchinson, "to the Host of Heaven," or wherein to worship the sun, moon, planets, &c. ; and the Jerusalem Targum says "He (Nimrod) was mighty in hunting, (or in prey,) and in sin before God, for he was a hunter of the children of men, in their languages ; and he said unto them, 'Depart from the religion of Shem, and cleave to the institutes of Nimrod.'¹"

I also submit it may be inferred from Genesis, chapters 10 and 11, that Shem and his descendants, (who were the holy line, after the Flood) were not

¹ Vide Dr. Adam Clarke's commentaries on Genesis chapters 10 and 11.

part of the Babel builders, for it is therein declared that “the beginning of Nimrod’s kingdom was Babel, and Erech, and Accad, and Calneh, in the land of Shinar;” and also that “the Lord came down to see the city and the tower which the children of men builded.” The words “children of men” being, I submit, with respect to the Hamites, synonymous with the words “sons of men,” with respect to the Cainites.

It is stated in the Universal History¹ “that some of the Arab writers say that the three most remarkable pyramids were erected by the Egyptians before the Flood. The Copts report that the east pyramid is the sepulchre of King Saurid; the western of his brother Hûjib; and the coloured pyramid of Fazfari-nûm, the son of Hûjib. The Sabians pretend that one of them is the sepulchre of Seth; the second of Hermes, (or Enoch;) and the third of Sabi; from whom this sect say it is denominated: it is also said that the Sabians go in pilgrimage thither and sacrifice at them a cock, and a black calf, and burn incense. But the general opinion is that they were built by Saurid, before the Flood; and the Copts mention an inscription engraven on them to this effect, “I, Saurid, the king, built the pyramids in such and such a time,

¹ Vol. I, page 427.

and finished them in six years : he that comes after me and says he is equal to me, let him destroy them in six hundred years ; and yet it is known that it is easier to pull down than to build : and when I had finished I covered them with satin ; and let him cover them with mats."

Although no inscription is now to be found on the Pyramids, yet Abd'Allatif says that he saw a prodigious number of hieroglyphical inscriptions on the two great pyramids, as many as if copied would fill perhaps 10,000 volumes. Job, I submit, refers to such inscriptions in Job xix, 23, 24, namely "O that my words were now written ; oh that they were printed in a book ; that they were graven with an iron pen, and lead, in the rock for ever." Meaning, I submit, a pyramid by the word "Rock." The three principal pyramids are situated on a barren rocky mountain between Memphis and the Delta, near the village of Busiris ; and to shew how much they resemble rocks, it is stated in the *Encyclopædia Britannica*, that "Mr. Bryant is of opinion that the pyramids, at least the three great ones, are not artificial structures of stone and mortar, but solid rocks cut into a pyramidal shape, and afterwards cased with stone ; and to this we find that Mr. Bruce likewise assents. The reason given for this opinion is, that the passages within them seem rather

to answer to the natural cavities and rents in rocks, than to the artificial ones in buildings. This opinion however, is we think sufficiently confuted by Savary and Maillet."

With respect to the expression "graven with an iron pen and lead," it may be a question whether the coating which formerly was on some of the pyramids,¹ or at least that part of it which contained the hieroglyphical inscriptions, was not blocks of lead, or at least what our translators call "lead;" and I have been lately informed² that upon opening the Egyptian Mummy cases, the title deeds of the deceased are sometimes found therein, with seals of lead attached to them, marked with hieroglyphics.

The before-mentioned expressions of Lamech upon naming his son Noah, may also go to prove, that the antediluvians were at that time engaged in some stupenduous works, such as the pyramids; and from the further prosecution of which, they were perhaps relieved by a revelation to Lamech himself, that the holy line should be saved from the Flood by an ark, through the instrumentality of his son Noah.

¹ It is not improbable that such coating was from time to time removed by the barbarous, or bigoted, or rapacious hands of the invaders of that country.

² John Davidson, Esq., F. A. S., M. R. A. S., favoured me with the above information.

There can be no doubt if the ark had not been built, that the interior of the pyramids, upon the entrances being securely closed, would have been the safest places on the earth; for the tops of the mountains even if the water had not covered them, (and they had been divested of snow) would have swarmed with wild beasts and noxious reptiles taking refuge there.

The sacred hieroglyphical inscriptions were most probably continued down on such pyramids to the time of the Flood, by the Sethites, and perhaps by the Shemites after the Flood, till the descendants of Ham became possessed of Egypt; and as it is almost universally admitted that the original language was Hebrew,¹ and was continued in the line of Shem, ("the father of all the children of Eber" or Heber) after the confusion of tongues, and also "after the earth was divided," in the time of his great grandson Eber, or of Eber's sons Peleg and Joktan;² it is there-

¹ Dr. Adam Clarke, in his commentary on the eleventh chapter of Genesis, says, that until the confusion of tongues, the language of all the world, in all likelihood, was the Hebrew; and that it is generally supposed that after that event, the Hebrew language remained in the family of Heber, "and that it was used, says Mr. Ainsworth, "in all the world for 1757 years, till Phaleg (or Peleg) the son of Heber, was born, and the Tower of Babel was in building, one hundred years after the Flood, Genesis x. 25. and xi. 9., after this it was used among the Hebrews or Jews, called therefore the Jews' language, Isaiah xxxvi. 11., until they were carried captive into Babylon, where the holy tongue ceased from being commonly used, and the mixed Hebrew or Chaldee came in its place."

² Vide Genesis x. 21 and 25.

fore very probable, that the Egyptians, as the idolatrous descendants of Ham, did not understand these sacred antediluvian Hebrew hieroglyphics or inspired inscriptions, or if their *priests* really did understand them, yet to shield their idolatry, they threw a mantle of deep mystery over them ; but that Moses as one of the descendants of Shem and who was learned in all the wisdom then found or recorded in Egypt ;¹ or who, as St. Stephen expresses it, “ was learned in all the wisdom of the Egyptians,”² compiled that part of the Book of Genesis down to the time of the Flood therefrom, during the first forty years of his life, before he fled into Midian, and the sacred history of the world, at and after the flood, was most probably very circumstantially handed down to Heber, and Abraham, and Isaac, by Shem who was born about ninety-eight years before the Flood, and lived to within about ten years of the birth of Jacob, and Heber lived till Jacob was about nineteen years of age. Abraham’s descendants would afterwards continue such sacred history down to the time of Moses ; and which I submit furnished him with materials for the latter part of the book of Genesis. However it must be admitted here

¹ Philo says Moses was taught arithmetic, geometry, poetry, music, medicine, and the knowledge of the hieroglyphics.

² Vide Acts vii. 22.

that it might be said in answer to this that the sacred history of the world, before, as well as after the Flood, could have been easily handed down, either orally, or in writing by the Patriarchs to Moses, independent of the hieroglyphics on the pyramids, namely by Adam and Seth to Enoch, Methuselah, and Lamech; by Methuselah and Lamech to Noah and Shem; by Shem to Heber, Abraham, and Isaac; by Isaac to Joseph; by Joseph to Amram; and by Amram to Moses: or that the whole was a divine revelation to Moses, quite independent of any previous revelations to the illustrious line of antediluvian, and postdiluvian patriarchs, or of any sacred records thereof; but it is worthy of remark here, that Moses does not through the whole book of Genesis, make use of the words “and the Lord spake unto Moses,” &c. nor does he in the book of Exodus do so, until he comes to the transactions of his own time, and then he does in almost innumerable instances make use of those expressions; and it is also observable here, that almost all the prophets and inspired writers of the Old Testament, prefaced their books with some such words when any direct revelation was made to them.

The fact of there being immense pyramids in the Mexican empire, also I submit, proves the

antediluvian origin of such structures,¹ for it is contended by Hornius² and others that North America after the flood, was *first* inhabited by Scythian or Tartar barbarians about 400 years *after* Christ, and that the Chichimecæ a barbarous people, in most part of their customs resembling the ancient Scythians, found their way into Mexico about the seven-hundredth year of Christ. Now taking it to be the fact that America was not peopled till at or about the above-mentioned time *after* the flood, by such barbarians, and looking at the uncivilized state in which Columbus and his successors found the western world, we cannot, I think, suppose that it ever contained, since the flood, a nation so powerful and so skilled in the arts and sciences, as to build such stupendous pyramids as those of Cholula, Papantla and Teotuaichan, some of which are placed in due cardinal points, and others are covered with hieroglyphics, and possess an unity of design with those of Egypt. And it is worthy of remark here, that the Mexicans have a tradition that the pyramid of Cholula was built by

¹ It is quite evident that the Antediluvians must have been well-skilled in architecture, for it is impossible to believe that Nimrod and his followers could, within one hundred years after the Flood, have built that stupendous work, the Tower of Babel, unless mankind had been well skilled in architecture before the Flood. Indeed the building of the ark by the Antediluvians shews that they were so skilled. And Cain himself built a city.

² Vide the "Universal History," vol. 20, Title, Dissertation upon the peopling of America.

Xelhua, one of the giants who built this mountain to represent Tlaloe, in which seven people were preserved from the general inundation.¹

Herodotus says that there was, in his time, an inscription on the first pyramid, declaring how much was expended in radishes, onions, and garlic, for the workmen, which his interpreter told him amounted to no less than 1600 talents of silver, or about £413,333 6s. 8d. sterling. And Mr. Davidson, in his lecture, says he thinks the above observation of Herodotus as to the food of the workmen employed in the building, "proves that they were erected at a period when a vegetable diet formed the food of man." And I take it, this also strongly proves that the oldest pyramids were Antediluvian, for vegetable food only did not form the food of man after the Flood, but it did before that event. The grant to Adam immediately after the Creation, was "Behold I have given you every herb bearing seed, which is upon the face of all the earth; and every tree in which is the fruit of a tree yielding seed; to you it shall be for meat." And immediately after the Fall, the Deity said to Adam, "Thou shalt eat the herb of the field, and in the sweat of thy face shalt thou eat bread." But the

¹ Vide Lecture of John Davidson, Esq., F. A. S., &c., on the Pyramids of Egypt, in "The Analyst," No. IV., for November, 1834.

grant to Noah and his posterity, by the Deity, immediately after the Flood, was "Every moving thing that liveth shall be meat for you, even as the green herb have I given you all things." And we know that the Israelites, even during their cruel bondage, and hard servitude in Egypt, lived on animal food; for when they were in the wilderness they said "Would to God we had died by the hand of the Lord in the land of Egypt, when we sat by the flesh pots, and when we did eat bread to the full."¹ And on another occasion, in the wilderness, they said, "Who shall give us flesh to eat? we remember the fish which we did eat in Egypt freely; the cucumbers and the melons, and the leeks, and the onions, and the garlick."²

There is also another fact which may lead us to believe that the Hebrews did not build the pyramids, namely, it is generally supposed that at the Exode they were far from being a robust race of people, or why were they in so much dread of the Anakims, and spoke of them as such monstrous giants. It is admitted that the pyramids must have been built by a very powerful race; and it is thought that mankind were of great stature before the Flood, and that after that event they gradually declined in size and strength, as they did in longevity. Some authors have attempted

¹ Exodus, chap. 16, v. 3.

² Numbers, chap. 11, v. 4, 5.

to prove the gigantic stature and great bodily powers of mankind, even down to the time of Abraham and Homer, (in comparison with the present race,) by the amazing quantity of food which they consumed at a meal;¹ for instance, Abraham laid before his three guests, under the tree of Mamre, a whole calf, and bread amounting to three measures, or more than two bushels of meal, or fifty-six pounds of our weight; and also butter and milk. Homer, *Odyss.* lib. 14, v. 74, &c. makes his heroes great eaters; when Eumæus entertained Ulysses, he dressed two pigs for himself and his guest. On another occasion a hog of five years old was slaughtered and served up for five persons. *Ibid* v. 419.

¹ Vide Dr. Adam Clarke's commentaries on Genesis, chap. 18.

SUPPLEMENT TO THE OBSERVATIONS ON
THE ANTEDILUVIAN TRACKS, &c.

IN order to ascertain the nature of the indentations in the river Teme, at Tenbury, referred to by Mr. Lycett, (*vide ante*, p. 25) I did on the tenth of June, 1835, go to that place, accompanied by Mr. Lees, to examine such cavities, and at the shallows, about half a mile to the east of Tenbury, near a rocky headland, Mr. Lycett shewed us a great many holes in the stratum at the bottom of the river of all sorts of shapes, corresponding with the comparatively soft matter which had been washed out of the bed. Some part of the stratum is old red sandstone, but it is generally of a very soft quality, and looks more like the friable marl stone, which chiefly prevails there. Several of the holes were evidently the sites of pebbles or nodules which had been detached from the body of the stone; and one of the old inhabitants of Tenbury, (Mr. Page) told me that once when he was fishing at the Fords, he picked a pebble out of a hole in one of the flat stones at the bottom of the river, and which hole exactly corresponded with the shape of the pebble. None of the numerous cavities that we saw, had any protuberances in them, corres-

ponding with the frog of a horse's or colt's foot, nor did they bear any resemblance to the tracks in Sapey¹ and Whelpley Brooks. The same sort of friable marl stone prevails at the bottom of the Teme, to the westward of Tenbury, particularly at and near Berrington Rock, and in which, it is said, that holes similar to the above mentioned may be seen when the water is very low.

In our way to Tenbury we examined a rivulet called Spout Brook, which runs in a northern direction from Handley William by Handley Court, and through Spout Farm in Eastham Parish, into the Teme, and we found from Handley Mill for about a mile downwards, that the Brook runs over a shattered stratum of hard old red sandstone, at the bottom of a deep glen, or dingle, (just like that at Sapey Brook,) but several of the inhabitants informed us that they never saw any circular or semicircular marks on the stones in the brook; and we were not able to discover anything of the kind ourselves. The scenery in this brook is extremely romantic, particularly at that part called "Death's Dingle," where there is a junction of a tributary stream with the brook, and where the

¹ A workman in one of the hop-yards at Yeardiston, near Sir Christopher Smith's, told me that, about 20 years ago, he saw in the Hope Mill, at Lower Sapey, a stone which had been taken out of Sapey Brook, with a very fine track of the mare upon it, and which was kept there as a curiosity.

tributary falls down a perpendicular of between twenty and thirty feet. This brook has several beautiful falls over the shattered stratum of the old red sandstone, and also occasionally over the limestone, which crops out in various parts.

The steep declivities of this brook, like those at Sapey, are very much coated in places with immense masses of calcareous incrustations,¹ and large fragments of such travertine, or tufa, have here and there fallen into the channel.

There is also another circumstance in this brook which attracted our attention, namely, in some places on both sides of the channel, the almost perpendicular declivities are composed of a deep stratum of whitish sand, or drift, interspersed with horizontal thin layers of whitish clay, and occasionally coated with calcareous matter, and such stratum (which in some places is exposed to the depth of from ten to twenty feet) contains a great many white and red snail shells, being generally from about half an inch to near an inch in diameter, and which shells are interspersed in the stratum, from the top to near the bottom of it.— Upon stocking into the stratum in several places to

¹ The Travertine at Southstone's Rock, before referred to, was evidently formed by the flowing of a very strong spring of water over the precipice. That spring now runs down the opposite side of the rock, (and so it did before the year 1806, when I first saw it,) and it is forming calcareous incrustations in its present course.

some depth, with the fluke of a hammer, we found that the snail shells abounded equally in the interior, and many of them looked almost as fresh, and the red spiral lines thereon, nearly as distinct, as those of the present day; and they are not in the least petrified, although there is petrified matter interspersed in the stratum, and which evidently was formed therein.

This brook, which rises about a mile above Handley Mill, is bounded on the east and west by high ground, and it runs down Eastham Hill, towards the north; I take it, therefore, that it was impossible for such drift to have been brought into the glen, or dingle, from any point but the southward; and the question is, whether any flood but the Noachian could have accomplished it. The stream appears to have subsequently gradually cut through the stratum in the same manner as I have previously suggested relative to Sapey Brook and Rosebury Rock.

The above stratum was noticed by the author of a poem entitled "Eastham Hill," so long ago as the close of the last century, and he states the discovery there of quantities of leaves of oak, hawthorn, fern, grass, and other vegetable remains, specimens of which he states that he deposited in Rackstrow's Museum, London, which has been long broken up. He also mentions that a bolting of wheat straw was found

there perfectly petrified, but which was unfortunately broken by the quarrymen in attempting to remove it. He further observes, that immense quantities of snail shells are dispersed through the stratum, but no other kind of shells; though something like the bones of land animals had been found. He infers the antiquity of this deposit from Eastham Church, a Saxon edifice, being partly built of it; and thinks the whole mass was accumulated together by some catastrophe of which tradition has left no record.

The above-mentioned writer is quite correct in stating that Eastham Church was partly built of the materials from Spout Brook, for beneath the present outer coating of plaster which covers the church the travertine (or tufa) walls may be distinctly seen in some places; and we were informed by several of the inhabitants, that the old tower which was taken down about five years ago, (upon enlarging the church,) was built of the same materials, and which even then appeared very durable. There is, on the south side of the church, an ancient arch, in the Saxon style, still remaining, but the same was built of the old red sandstone.

TRACKS IN DICK BROOK.

I LEARNT from Mr. Lycett, that Mr. John Amphlett, of Dunclent, near Kidderminster, (who for many years has been a zealous geologist,) had apprised him of some remarkable impressions in Dick Brook, in the parish of Aka, or Rock; and that Mr. Amphlett had given the following account of them, namely, "That many years ago, when he was very young, his attention was drawn to certain cavities resembling the tracks of horses' hoofs, in the sandstone forming the bed of Dick Brook, in the parish of Rock, Worcestershire. That upon his mentioning the resemblance, the country people gave him a legend to account for them, the substance of which was that the marks in question were caused by a mare and foal, which were agents in effecting a miracle, being nothing less than the transportation of the parish church of Rock. The church was attempted to be erected at a certain spot eastward of Dick Brook, but the materials were conveyed from thence in the night by a mare and foal, across the brook to the very elevated ground on which the present church stands. That the marks were scattered along the course of the stream for some

distance, and situated a mile and a quarter above Rogers' Mill, between Knott's and the Worsley Estates, a little higher up than the spot where a road crosses the brook about two miles south east from Rock Church." I therefore, guided by this information, on the 22d of June 1835, went, accompanied by Mr. Lees, to Rogers' Mill, (which is situated about a mile from the village of Abberley) and from thence up the brook, to the part described where (near a barn called Wheeler's, on the Worsley Estate, and for about half a mile along the channel,) we found several "frogular"¹ impressions of the mare and colt in the hard old red sandstone, resembling those at Sapey Brook in size and shape, but they are in general more worn, and some of them are very much covered with moss. We also saw a track which looked like that of a cow; and on a stone about the size of that set forth in the Sketch, No. 1, there was a fine pattering impression, four and a half inches in diameter, one way, five inches the other way, and two inches deep. It appeared formerly to have had a centre-piece, but it has been broken out.

The stratum of old red sandstone in this brook

¹ As the cavities in the marlstone at Tenbury have been caused by nodules or soft matter being washed out of them, I call the *genuine foot marks*, having the rise in the centre, "*frogular*," to distinguish them from the nodular or pseudo-tracks.

resembles that at Sapey in thickness, and also in the shattered and discomposed state in which it lies in the channel; and the brook runs along the bottom of a deep glen or dingle, and pursues a south easterly course, from near Rock Church, round the north end of Abberley Hill and into the Severn. We caught several craw-fish in the stream, two of which measured six inches long, from the tip of the claws to the end of the tail.

Dr. Nash in his History of Worcestershire, says, that part of Rock Church is very ancient, and is supposed, by him, to have been built in the time of the Saxons. Now coupling the antiquity of the church with the legend, it shews that the remarkable character of the tracks in question, must have been noticed for a great many centuries.

We then visited Berrington Rock, beyond Tenbury again, and found that the holes in the marlstone, in the channel of the Teme, are exactly the same as those in the channel on the east side of Tenbury, which I have before described.

SAURIAN REPTILES, AND OTHER REMARKABLE ORGANIC REMAINS.

IN the parish of Bidford, in Warwickshire, on the border of Worcestershire, the lias prevails, and I lately obtained from thence fragments of Saurian Reptiles and Ammonites which had been taken out from near the bottom of a deep Lias quarry at Bickmarsh, called the "sixteen acres." One of the workmen told me that although they had excavated the quarry to the width of about eight yards, yet that one of the reptiles was longer than the excavation, and continued on in the part not broken into; but I am sorry to say, that nearly all the fragments are lost.

One of the fragments in particular is very extraordinary, and looks something like the upper jaw, or mandible, of a Saurian. It is two feet five inches long, and has an indent like an eye-hole, but instead of being straight on the under side, where the teeth should be, it runs in three segments of circles, the first nearest the indent being six inches and a half long, and two inches deep; the second being near

eight inches long and one and a half deep ; and the third being eight inches long and one and a quarter deep. I do not find any bone like it in the drawings in the work of Thomas Hawkins, Esq., F. G. S., &c., entitled "Memoirs of Ichthyosauri and Plesiosauri, extinct Monsters of the Ancient Earth."

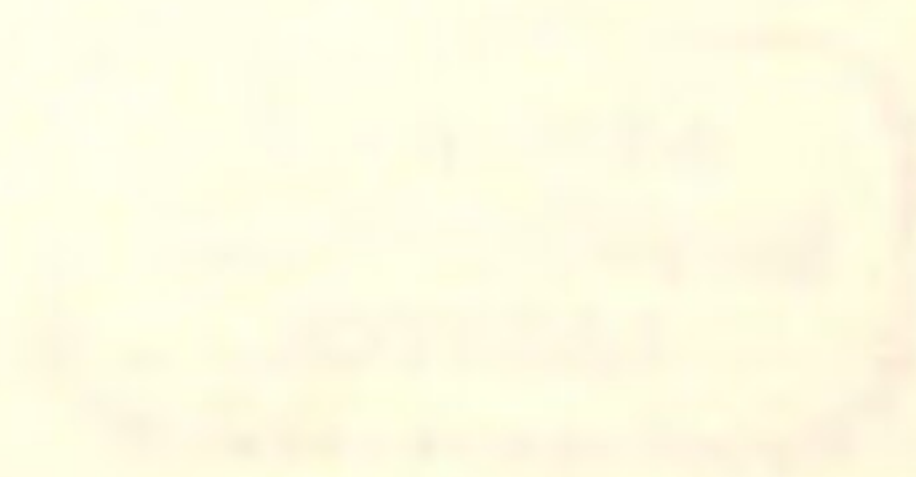
Some have thought that the above-mentioned fragment is not a bone, but if not it must I take it be lias, which was formed in the bed where a bone or horn of the same shape previously lay. Should it not be the relic, or cast, of a Saurian's jaw, I take it, it must be that of a stag's antler.

Perhaps the most remarkable fragment from the above quarry, is a stone which contains the fossilized head of a bird, at least so I take it to be. The stone was split in two, and the head and bill divided asunder, longitudinally, leaving half in each section. The eye-hole is filled up with light blue lias, and the rest of the head is of a brown bony appearance ; the top part of the head is considerably elevated, like that of a woodcock ; the eye-hole, however, is not placed back like a woodcock's, but looks more like that of a pigeon. The length from the tip of the bill to the crown of the head is two inches and a half, and from the latter to the lower jaw is an inch and a half. Hugh Strickland, Esq., F. G. S., has suggested that it is one of the

vertebræ of a Saurian, but upon examining all the drawings of them in Mr. Hawkins's work, I am satisfied that it is not, and that it is the head of an extinct species of bird.

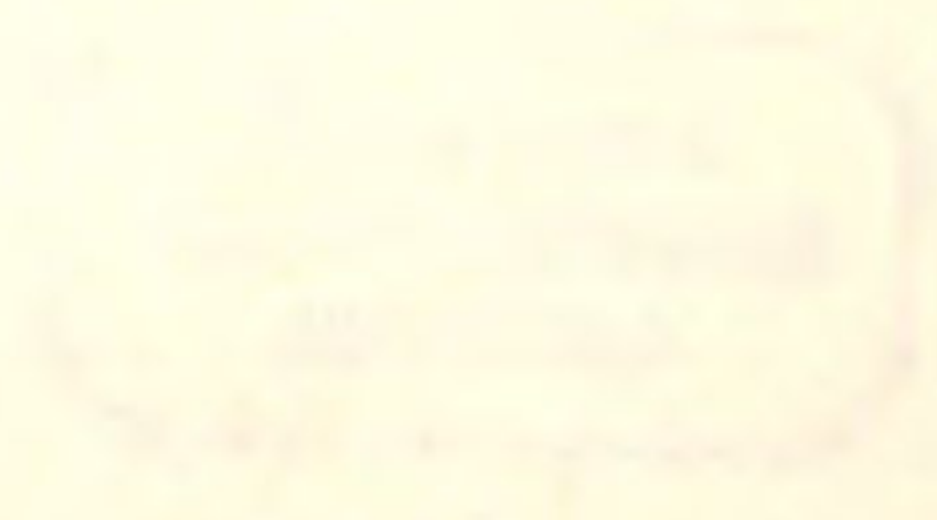
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